

# SUPPLEMENT.

## The Mining Journal, RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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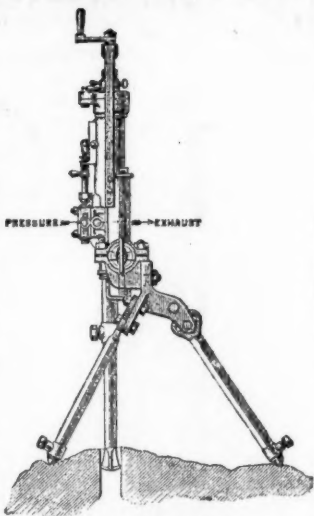
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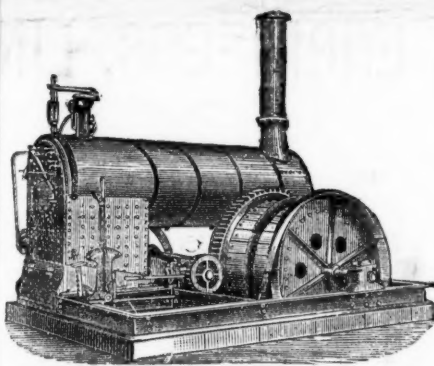
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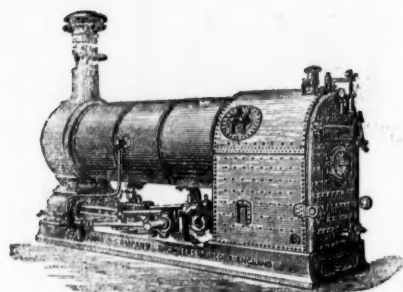
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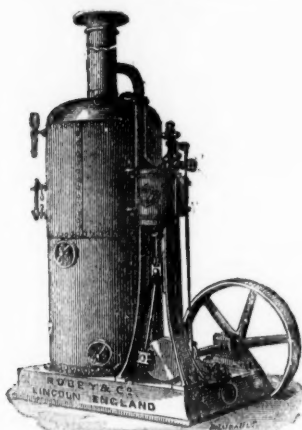
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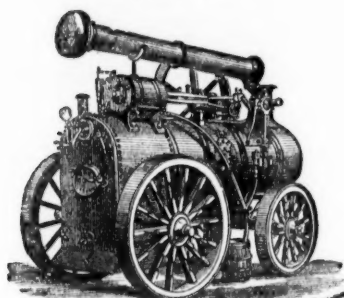
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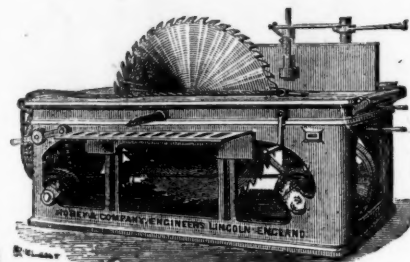
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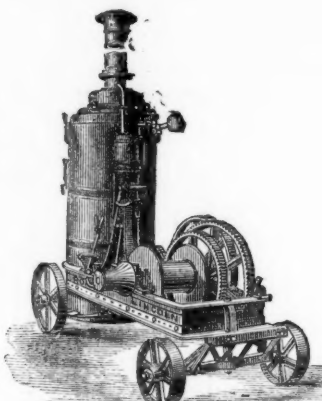
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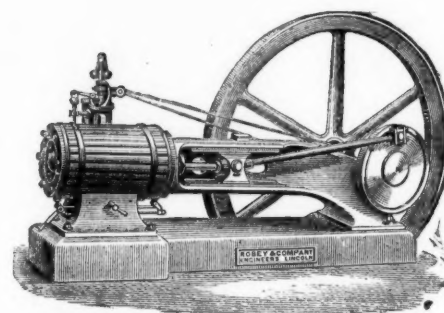
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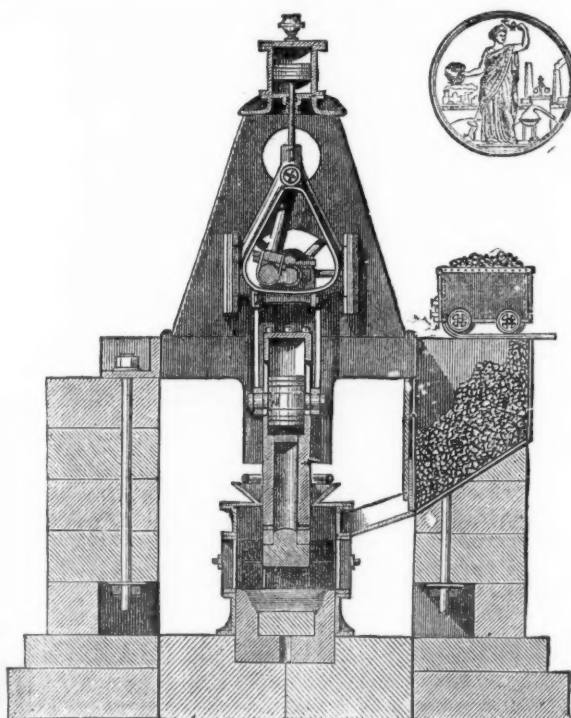
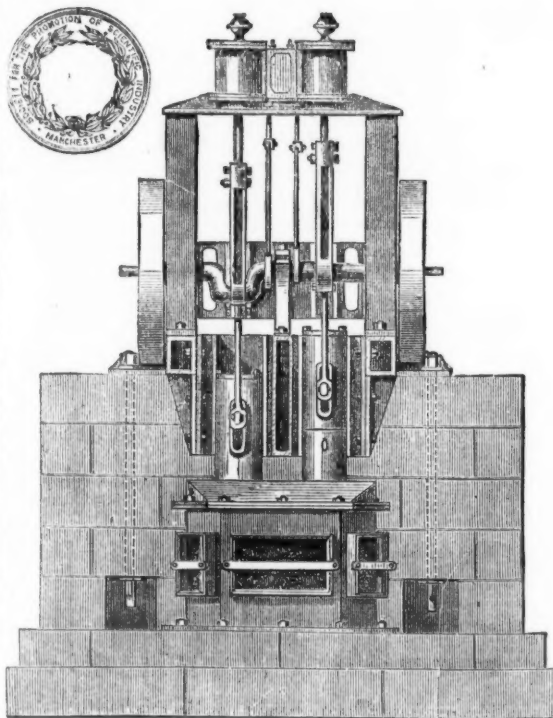
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## Original Correspondence.

## THE USE OF SLIME PITS.

SIR,—The other day, when boating near Aberystwith, I was much struck with the appearance of the sea-water at a point where a stream empties itself into the ocean. The sea elsewhere was wonderfully clear, rocks and seaweeds were visible many fathoms down, but where this small river flows into the bay the sea for several hundred yards out was discoloured in an unmistakable manner by what appeared to be extremely fine and white sediment. This stream is employed to dress ore from more than one lead mine in Cardiganshire. The attempt to clarify the water by means of slime pits in this case was evidently a failure. Of course, no fish now exist in this river, and a sailor assured me that sea fish are killed if they happen to feed in such water.

Two years ago I pointed out in a local paper\* that the practical miner has not only to deal with mechanical sediment, but also with what is actually dissolved in the water. In Cardiganshire the question is much simpler than it is in Cornwall. In the latter district a host of chemical compounds have to be taken into consideration, the chief of which are insoluble in water, but some of which are more or less soluble. Dressing in Cornwall is carried to great perfection, but I think I am right in saying that slime pits are there used for economical and not for sanitary purposes. The streams have been hopelessly polluted for generations, and the landlords, contented with the royalties they pocket, have long ago been forced to throw their flies "in other waters." In Cardiganshire, indeed, some rivers are polluted to a great extent, but others of them are still the favourite resort of trout, and may, by due care on the part of mine managers, remain comparatively pure for many years to come.

The lodes of Cardiganshire occur in the Lower Silurian formation. The formation in this county, or the country rock, chiefly consists of clay-state, or hydrous silicate of alumina, containing besides protoxides of iron, calcium, magnesium, potassium, and sodium in such small proportions that we may ignore them altogether. The ore-bearing portions of the lode are usually galena (sulphide of lead), or blende (sulphide of zinc), or a mixture of the two, often accompanied by quartz. Other lodes are conspicuous for bearing copper pyrites (double sulphide of copper and iron), and the blue and green carbonates of copper. Besides these there may be present sesquioxide of iron (in gossan), iron pyrites (disulphide of iron), carbonate of lime, carbonate and phosphate of lead, and oxide of manganese. The above are all practically insoluble in water, with the exception of carbonate of lime and carbonate of lead, provided the water contains carbonic acid.† Carbonate of lead is a very poisonous compound, but fortunately it occurs very rarely in the Cardiganshire lodes. When it does occur it is clearly a result of decomposition, being found usually where the lode comes up to surface. Oxygen, or water charged with oxygen, converts the sulphide into sulphate, which latter is converted into carbonate by bicarbonate of lime in solution.‡ To allow such a decomposition to occur calcite or carbonate of lime must be present in the lode, hence it may be safely affirmed that carbonate of lead does not occur in any lodes in Cardiganshire in which carbonate of lime is absent, and this statement I have confirmed by observation. There is a possibility, then, of minute proportions of carbonate of lead being dissolved by the water used for dressing purposes, and by the water in the lode itself,§ and it is probable that such water may in course of time kill fish. But galena in minute particles is a much more likely agent. The lead compound may enter the fish in three ways—1, through the mouth directly into the stomach; 2, through the gills; and 3, by absorption through the skin. The first two are doubtless the usual methods. The minute particles of galena would be slowly oxidised in the fish's body, and at length converted into carbonate. Lead poisoning in the case of men and domestic animals has been proved to be a very gradual thing, and it is probably so in the case of fish. To discover the real cause of death a careful dissection and examination should be made of the dead fish; the whole should then be well levigated in pure water, and finally with water containing a certain proportion of acid. The two solutions should afterwards be examined separately for lead compounds.

At present we may regard the elimination of dissolved compounds as impracticable, but ridding the water of mechanical sediment as otherwise. The miner has in this branch of his science the same difficulty to contend with that the lead smelter has in attempting to condense lead fumes—fineness of particles. The lead smelter finds that the particles, although of high specific gravity, are deposited very slowly on account of the extreme smallness of their size, any slight movement of the air keeping them afloat for a long time. The only method that succeeds with him is that of attaining the least movement of the air. Similarly, the miner should recognise the principle that the attainment of the least movement of the water is the only one that is likely to ensure success. The contents of a beer-barrel when first tapped are muddy and unfit to drink, but after awhile the sediment settles, and we can draw a clear and sparkling liquid. This principle is beginning to be appreciated, and now we hear of mines adopting the plan of having two very large slime pits, or reservoirs as they may be termed, into which the water from the floors is turned alternately. The water is allowed to run into the pit A (say) for 12 hours, during the night it is quiescent, and also during the next day while B is being filled; A is then allowed to empty itself during the night—24 hours of motion being thus succeeded by 24 hours of rest. There are one or two objections to this system. The water has to be drawn off from the surface of the deposited slime every alternate day, which must entail a good deal of slime from the surface of the deposit being carried off with it. To obviate this a certain depth of water should be allowed to remain above the slime, which would necessitate very deep pits. In large mines, again, the reservoirs would have to be of enormous size, which would entail great expense, and occupy a large amount of space. Smelters succeed most in condensing lead fume by allowing it to traverse one long horizontal chimney; but one large slime pit would be insufficient for the miner's purpose, as there would not be time for the finest particles to be deposited therein unless the reservoir were of huge proportions. I cannot help thinking that on the whole the use of several large pits is better than that of two filled alternately. The size would, of course, depend on the amount of water used for dressing purposes. One or two large pits are far better than several small ones. The following points should be strictly attended to:—

- 1.—Each pit should be of good breadth, depth, and length—say, 15 ft. broad, 6 ft. deep, and 30 ft. long.
  - 2.—The water should enter in as thin a sheet and with as little flow as possible.
  - 3.—The water should enter at the extremity of one long side, and flow out at the opposite extremity of the other.
  - 4.—A series of closely interwoven hurdles might advantageously be placed across the pits, parallel to the shorter diameter. These, if properly made, would act the part of filters.
  - 5.—A sample of the issuing water should be passed through a good filtering paper, and the amount of sediment still contained in the water ascertained. Both filtrate and sediment should be severely tested for lead.
  - 6.—Care should be taken to empty the slime pits of slime every now and then. It would probably be found profitable to re-dress the contents of the first pit.
  - 7.—The water from the adit level should be allowed to traverse the series of pits.
- Pits of the above size might be conveniently placed in a row, and if there were still an insufficient number of them another row might be commenced parallel to the first.

The following results were actually obtained from six slime pits of

small size:—A certain volumetric amount was taken from the water issuing from each pit, this was then passed through a filtering paper previously dried to 100° C., and weighed. The paper with the sediment thereon was then dried to 100° C., and then re-weighed. The water as it flowed into the first pit contained .084 gramme of sediment in a certain measure.

The water issuing from No. 1 pit contained....	gramme	.084
Do. do. No. 2 do. ....	.....	.0385
Do. do. No. 3 do. ....	.....	.0185
Do. do. No. 4 do. ....	.....	.0145
Do. do. No. 5 do. ....	.....	.0095

No. 1 pit was nearly full of slime, and no sediment was deposited therein, this shows the necessity of emptying the pits of slime from time to time. The above figures show that more than 75 per cent. of the sediment was deposited in pits Nos. 2 and 3, that is in the first two pits, for No. 1 may be ignored. Altogether 88.7 per cent. of the sediment was deposited in the pits. By using several large pits, and by adhering to the above rules, I am convinced that practically the whole of the sediment could be removed, that is to say, to within a fraction of a unit of 100 per cent. EDWARD HALSE, A.R.S.M.

## MINERS' SAFETY LAMPS.

SIR,—There have been so many suggestions for improvements in miners' safety lamps, that one would almost have thought that perfection would have been ere this attained, yet no one accustomed to the use of miners lamps can pretend that they are all that could be desired; some being excessively heavy, some giving but very little light, and some being very liable to get damaged. In principle all miners' lamps are very similar, they are provided with finely perforated metal for the passage of air or vapour to or from the interior of the lamp for the maintenance of the flame within the lamp, but such perforated metal becomes often so highly heated when in use in situations where much fire-damp or explosive gas is present as to convey such heat to and cause the ignition of the gases surrounding the lamp. The object of the invention of Mr. R. C. Strelley, of the Ebbw Vale Works, is to remedy this evil. For this purpose he substitutes for the perforated metal usually employed a material of a low conducting power, and of substance that will admit of some extent of surface to the perforations for the passage of air or vapour to and from the interior of the lamp so as to lessen the passage of heat, and thereby prevent the danger of ignition of the surrounding gases. The material which he has found to answer well is porcelain, or earthenware, glazed or otherwise, applied to a suitable part of the lamp; and he forms such material as a disc, say about 2 in. in diameter and  $\frac{1}{4}$  in. in thickness, perforated with holes of about 1-24 in. in diameter, and in number, say, from 50 to 60 to the square inch of surface. The lamp seems likely to become a general favourite with miners, as it can be cheaply sold, is light, and not liable to derangement, and of great illuminating power.—*Swansea, May 25* ECONOMY.

## ECONOMIC TUBE WELLS.

SIR,—Although I am quite aware that you have from time to time noticed in the *Mining Journal* the Abyssinian tube wells from the time they were originally introduced by Mr. Norton, but the improvement now introduced by Messrs. Le Grand and Sutcliffe, of Bunhill-row, who for years have manufactured them is so important that I should like you to permit me to notice it. Practically it enables us to have a tube well much deeper than usual without at all injuring the tubes in putting them down. They employ for driving the tube or hollow pile a weight fixed upon or formed with a stem, which enters within the tube and serves as a guide for the weight as it is raised and allowed to fall. By preference they cast the weight in iron upon a bar of wrought-iron, somewhat smaller in diameter than the interior of the tube intended to be driven, and so that the bar projects on either side from the cast weight. The driver is repeatedly lifted and allowed to fall. The cast part of the driver then strikes upon the upper end of the tube, which is strengthened by a flanged piece screwed upon it, and drives the tube into the ground.

The whole arrangement is very simple. A head is screwed on to the top of the tube, and the driving weight is cast on to the rod or stem. The stem projects beyond the weight and one end of it enters the interior of the tube and serves as a guide for the weight as it is raised and allowed to drop on to the head of the tube. The driver may be worked direct by men, who seize it by the upper part of the stem and lift it, and then allow it to fall; or it may be lifted by a rope passing over a pulley mounted in any convenient manner vertically above the driver, or other means may be adopted for raising the weight and allowing it to drop on to the head of the tube. I think it will be seen that this system facilitates much cheaper and more rapid driving, and is likely to cause tube wells to be even more largely used than they are at present.—*May 25* DRESSER.

## UTILISATION OF BLAST-FURNACE SLAG.

SIR,—Some very curious and interesting particulars are given in the paper of Mr. Charles Wood recently read before the Society of Arts. He states very truly that the disposal of the enormous output of slag or scoria from blast-furnaces has always been one of the serious difficulties of the iron trade. Taking an average of all the districts in England for each ton of iron made 25 cwts. of slag is produced, and from the official return of the last year of the iron smelted no less than 8,000,000 tons of slag were made. The space occupied by this mass, he tells us, when loosely tipped is something like 170,000,000 of cubic feet, or nearly twice the size of the Great Pyramid, whilst the bulk of the iron occupies only one-sixth of the same space. But whilst the iron finds its way into every corner of the world the slag is left behind at the smelting-works, a hideous memorial defacing the landscape, absorbing something like 250,000 sterlings annually in its disposal, and destroying for ever hundreds of acres of agricultural land. At the same time, he observes, there can be little doubt that blast-furnace slag possesses many valuable properties which may in certain localities be converted into things useful in the arts and sciences, and, which is the most important point, at considerable profit.

These observations of Mr. Wood's give rise to a long train of thought, for just as Lord Palmerston said that "dirt was useful matter in the wrong place," so it would appear that slag is also useful matter in the wrong place. Mr. Wood's figures are startling, for it may be assumed from them that the mass represents a solid mass of glass 160,000,000 cubic feet in size. The first question is as to the resistance to crushing which this slag will bear as compared with brick and freestone, and it may at least be assumed that slag will bear as great a crushing weight as common green glass if ordinary care be taken in running it. Now, I find from Stoney on Strains, and he has taken the best living authorities to guide him, that the crushing weights in pounds in square inch are—

Flint glass.....	27,584	Arbroath paving .....	7,884
Common glass.....	31,876	York paving .....	5,714
Blue Aberdeen granite ...	10,914	Kerry limestone .....	18,043
Cornish granite .....	6,356	Killaloe slate .....	20,860
Newry (slightly syenitic) ..	13,440	Ord. brickwork in cement.	521
Mount Sorrel .....	12,861	Baked Ham. paviers .....	1,220

I have selected the strongest granites, paving, limestone, slates, and bricks, in order that the comparison may be as unfavourable as possible to the slag, yet if we assume the latter to be equal to only 25,000 lbs. per square inch, we shall still have it nearly 25 per cent. stronger than any building material in use, so that any superstructure which could safely be raised on a granite or slate foundation could be raised on slag. I am well acquainted with Bodmer's slag-brick and other materials from slag which have been brought into the market, but if slag is to be used at all as a building material it must not have to bear the cost of manufacture. I suggest, then, that it should be used as slag for the lower courses of private buildings, and especially for small private houses, which being at present put together in the cheapest possible style, are built without slate courses or other protection against rising damp, and are, therefore, unstable and unhealthy. The slag courses would secure absolute impermeability and great strength.

Taking Mr. Wood's figures, it may be assumed that 160 cubic feet of moulded slag would weigh 8 tons—that is, 20 cubic feet to the ton;

consequently, slabs 6 in. thick, 2 ft. long, and 1 ft. 6 in. wide would weigh  $1\frac{1}{2}$  cwt., which is not an unmanageable mass. The weight of 100 of such slabs would be  $7\frac{1}{2}$  tons, and this number would be ample for most of the modern villas now built. Allowing 7s. 6d. per ton for freight, these could be delivered at almost any railway station in the kingdom, certainly at any within the Metropolitan district, at 17. per ton, with a large profit to be divided between the ironmasters and sellers. For smaller dwellings slabs 9 in. wide could be supplied at the same rate, and could be handled by one man. These would form an absolutely impermeable course, and whilst the cost would be but 7l. 10s. per house to the builder, the saleable value of the house would be at least 20l. greater, apart from the importance of increased durability. But this is not all, for I believe that if these slabs were once introduced they would quickly come largely into use, not only for damp courses but for the whole of the weather side of houses in exposed situations. The slabs would be scarcely more costly than common stock bricks, and the advantages would be enormous.—*May 24* SCORIA.

## BOSTON DEEPS, THE NUCLEUS OF THE PROSPEROUS FUTURE OF THE GREAT NORTHERN RAILWAY COMPANY.

SIR,—My letter in last week's *Journal* shadowed forth in distinct outline the immense benefit that would accrue to the precluded undertaking by the utilisation of the unparalleled coal shipping place Boston Deep, accessible to the largest steamers at all states of the tide and in all weathers, enabling them to load without the awful detention inseparable from tidal docks, corroborated by the excerpt Minutes of Evidence taken before the Thames Traffic Committee, so fully quoted in the course of my correspondence on the London Coal Supply.

The following transcript of a letter addressed to the secretary of the Great Northern Railway Company will carry conviction to coal-owners and others who are shareholders that, in lieu of inflicting an injury on their important system, my efforts will benefit the same in the highest degree:—

20, Little Tower-street, E.C., May 4, 1880.  
DEAR SIR,—The deep interest evinced by you in furtherance of the welfare of your company at our interview of the 6th ultimo is corroborated by the receipt of your esteemed favour of the 13th of said month. I reiterate my statement that the cost to the proposed Seaborne and Sack-Conveyed Coal Company (Limited) of household coal delivered into metropolitan consumers' premises can be shown to be upwards of 6s. per ton under the average annual selling price of South Yorkshire household coal, over 5s. per ton under Derbyshire and Notts, in each case by railway conveyance, with attendant charges; and over 6s. 6d. per ton under Tyne delivery, computed on the annual decennial average sea-freight, or 6s. on the abnormally depressed present rate. It can be demonstrated from elaborate official and practical data that steam coals from said coal fields will displace a very large proportion of the pulverised smokeless Welsh, as well as of the Northumberland steam coal, in the Thames. To avoid prolixity I have studiously eschewed a lengthened correspondence, confining myself in this missive to showing the immense benefit that must accrue to your company by my proposed supply of London with coal via Boston Deep, &c., which will give the Great Northern Railway Company an infinitely larger, unassailable, impregnable revenue than by the official return of 1879 coal conveyance by rail to the Metropolitan, since which period this year's first quarter's return per Great Northern—259,173 tons—shows a falling off of 50,000 tons, *mirabile dictu* simultaneously with 522,978 tons coal to London per Midland—an increase of about 19,000 tons aforesaid. The Times leader of this morning on the American railway disaster deserves serious consideration, aforesaid apart from the entirety of the Paris coal supply, the incomparably superior position of Boston Deep for the Baltic and North Sea traffic and export of Manchester, Birmingham, &c., manufactures. I hold original documents from the late Mr. Seymour Clarke, general manager of your company, verifying the outcome of my calculations for the supply of Paris with coal, and equally so of the late Mr. Thos. Brassey, and others. The leading technical metropolitan hebdomadaries have in editorial articles pronounced my undertaking feasible, and the chairmen of the London and North-Western and the Great Eastern, and the general managers of the Great Northern, the Midland, and the Great Eastern have given evidence of their impossibility to compete with water carriage in the conveyance of coal. I can make Boston Deep a most serious rival to the Humber ports—Sutton Bridge, Wisbeach, and Lynn not deserving notice—to the immense advantage of your company.

W. J. THOMPSON.  
To Arthur Fitch, Esq., Secretary of the Great Northern Railway, King's Cross.  
The secretary, with his well-known business aptitude and courtesy, has submitted the matter to the consideration of his directors, who, no doubt, will be penetrated with the conviction that with the prestige I approach their board, and the unimpeachable practical data at my command, they will find it consistent with their highly responsible position to investigate my data; and, if found correct, throw their regis over an undertaking replete with the greatest success for the important trust confided to their able guardianship and administration.  
Little Tower-street, May 24. WM. JOSEPH THOMPSON.

## RICHMOND MINING COMPANY.

SIR,—At the general meeting of the shareholders, held yesterday, the Deputy-Chairman, Mr. Broughton, asserted with much emphasis that the shareholders should not at that meeting consider and compare the working results of our immediate neighbour, the Eureka Consolidated Company, with those of the Richmond. Mr. Hopkins, the Chairman, had he been able to attend the meeting, would probably not have acted thus, because at the meeting held on June 18, 1878, he expressed himself as desirous of knowing what our neighbours were doing in the smelting line. He is reported in the *Mining Journal* as follows:—"Now, there (at Eureka) they (the Eureka Consolidated) are smelting under exactly the same circumstances as we. They have ore of the same sort—the cost of freight and their chief sources of supply are the same; in fact, we are working under exactly similar circumstances. I must confess that it would have been more satisfactory had we known what they were doing."

If the statements of accounts annually furnished to the shareholders of both companies are to be relied upon then the figures clearly prove that the Eureka shareholders have received far larger dividends from their working of ore of similar grade and nature than the Richmond shareholders have with all the alleged advantages of larger furnaces, the use of fluxing ores, and the working of their local refinery.

Mr. Broughton seemed to forget that he occupied the position of a paid director, and was bound to keep himself well acquainted with all that concerned the real interests of the shareholders. The mere fact that he is fortunate enough to be a holder of 600 shares, acquired at their par value, is no reason for his silencing even the smallest shareholder at the meeting who was desirous of questioning the real economy in the management of the company in comparison with that of the Eureka Company.

Mr. Broughton should remember that a very large number of the present shareholders have paid from 8l. to 16l. for their shares, and, therefore, it is a matter of great importance for them to know whether they lose nearly 15l. per ton of base bullion through unnecessary working expenses. With the price of lead falling, and the official statement that a working capital of 80,000l. to 100,000l. sterling is necessary to carry on the business of the company, every economy should be practised.

In this direction I would point out that at the general meeting of 1879 Mr. Hopkins, the Chairman, informed the shareholders that "within the last few months the State of Nevada has passed an Alien Act, which will enable us to place our property in a much more satisfactory position than it has hitherto been." How is it that the report of the directors is entirely silent on this most important matter, and that no allusion was made to it at the meeting? If this Alien Act was passed, as asserted by the Chairman, in 1879, why is the Richmond Company of Nevada, with its objectionable bye-laws, still in existence, and why is this double government, which Mr. Probert reported as being "so embarrassing," not done away with?

The following comparative statement, which I have compiled from the official reports, show the actual working results of the Richmond and Eureka Companies, from which shareholders can form a correct

\* Cambrian News, March 1, 1878, in a letter, "Trout v. Mines."

† According to Fresenius it takes 8834 parts by weight of water to dissolve 1 part by weight of carbonate of lime. Lassaigne states that 1 part by weight of carbonate of lead dissolves 7144 parts by weight of water saturated with carbonic acid.

‡ See Dr. Percy's Metallurgy of Lead, page 71.

§ I have found traces of zinc in water from the adit level of a mine in Cardiganshire.



judgment as to which is the best managed property. It will be observed that the Richmond are paying nearly double what the Eureka are for salaries and directors' fees. It should also be noticed that the Richmond ore was of a somewhat higher grade than the Eureka ore. It will be seen that the Richmond working expenses were fully 27. 10s. of ore in excess of the Eureka Company:—

	Richmond.	Eureka.
Number of shares	54,000	50,000
Par value of share	£ 5 0 0	£ 20 0 0
Amount of calls paid up per share	5 0 0	0 8 0
Total share capital called up	270,000 0 0	20,000 0 0
Total dividends paid per share	8 4 0	17 0 0
Dividends paid in 1878, per share	2 17 6	7 4 0
ditto 1879 ditto	1 2 6	4 8 0
Average mining expenses per ton of ore, 1877-79	2 5 0	1 10 8
Average smelting costs per ton of ore, 1877-79	3 14 0	2 6 0
Average cost of fuel per ton of ore, 1877-79	1 18 0	1 9 4
Average cost of labour per ton of ore, 1877-79	0 11 0	0 9 4
Transportation, marketing, and refining costs per ton of base bullion, 1877-79	16 0 0	14 12 0
General expenses per ton of ore, 1877-79	0 6 0	0 3 3
Average tons of ore to 1 ton of bullion, 1877-79	5 to 1	5 to 1
Average annual payments made to managers, office employees, and directors' fees, 1877-79	7,637 0 0	4,227 0 0

I have added the cost of the purchase or fluxing ores to the Richmond smelting costs for the reason given in my letter in the Journal of last week. The average refining, marketing, and transportation costs of the base bullion in the case of the Richmond appears from the accounts to have averaged 14s. per ton without the costs of reducing the litharges, drosses, &c., and 16s. per ton with these.

It will be observed that the directors have not deducted in the last accounts the litharge, drosses, &c., from the gross product (base bullion) of the ores smelted. The losses in gold, silver, and lead in calcining and refining the base bullion are not shown. These losses were found by the committee to amount to about 20 per cent. of the gross assay value of the bullion, and much larger than the deductions made by the New York refiners.

May 26.

#### RICHMOND CONSOLIDATED MINING COMPANY.

SIR,—Having taken a prominent part in the discussion on the adoption of the directors' report as to whether a considerable reserve fund should be formed, and whether it should be brought up to 50,000l. out of the profits for the year 1879, I trust you will allow me space for a short letter on that subject. I supported the directors' recommendation because I wish to see this splendid mining company in a thoroughly independent position, and it cannot be so while reliance has to be placed on bullion agents for advances to the extent of tens of thousands sterling, because such advances cost money—equal in 1879 to a dividend of 1½ per cent.—and because it might not always be possible to secure such great advances, while the difference between forced sales and bidding our time is exemplified in last year's profit and loss account to the extent of all the bonus and more.

But being quite alive to the propriety of calling things by their right name, I freely admit that such a fund is not properly a reserve fund, because it cannot be separately invested, but is required for the general business of the company. Neither can it for the same reason be treated as a dividend equalisation fund, for it will always be required as the working capital.

Therefore the suggestion made by one speaker that the moneys so set aside out of profits should be given back to the proprietors in the shape of bonus shares appears to me exactly to hit the right nail on the head; and as soon as a fund of 90,000l. be formed I hope the directors may be advised that it would be desirable to give one free or bonus share for every three shares held by the then proprietors. The capital account would then stand at 360,000l. Invested in mine, 270,000l. Working capital, 90,000l. Such a course would, I think, reconcile all shareholders to the reserve principle, and indeed would render all agreeable to a speedy completion of the 90,000l. It may be called a watering of the stock, but in a way that I have never seen objected to, as witness the recent great banking increase of capital, and the very similar course adopted by many powerful insurance companies.—London, May 28

J. C. BOLTON.

#### THE BRAZILIAN GOLD MINES.

SIR,—The meeting referred to by your correspondent was not convened by the directors; on the contrary, the directors were invited to attend in an unofficial capacity to meet Mr. Richards, who had resided for many years in the neighbourhood of the company's property, and who was about to return to Brazil as manager of the Santa Barbara Mines. Since it was a private meeting, its conveners, I presume, invited whom they chose. As, however, the information communicated, at least so I have been informed, was more than satisfactory as affecting the future of the enterprise, would it not be a graceful act on the part of those who possess this information to ask you, Sir, to open your columns for its publication, thus affording all interested the opportunity of knowing what actually took place.

May 25.

ANOTHER SHAREHOLDER.

#### DON PEDRO MINING COMPANY.

SIR,—The report of the directors is out, and a more disheartening one was never issued by this unhappy mismanaged company. When 30,000l. are spent in trying to pump out water economies are thought of, when machinery totally breaks down repairs are thought of, when human credulity can bear no more, suspicious reports are investigated, &c.—such is the style of the Don Pedro management—everything thought of at the eleventh hour.

After spending thousands in useless machinery, hundreds more in repairs, hundreds more are now asked to put to rights what was totally wrong from the very beginning. With hopeless official incapacity at home and abroad what future can be expected for this unhappy property? It is significant that the wages of the European employees are sadly at variance with those paid to natives. It is significant, too, that in spite of high pay not one of the European employees thought fit to point out the error of Capt. Vivian's reports as to the richness of the lodes. I would advocate the dismissal of all the underground men in consequence, as every man on the mine should have been aware of the real state of affairs. May I now ask that since this machinery has proved such a failure if such new inventions as the Pulsometer Pump would not prove far more effective than any pet scheme of some heaven-born genius? The Pulsometer is said to be a proved and a most effective pump, and its first cost and cost of repairs comparatively insignificant, while it requires only a steam boiler to work the same. It is simply ludicrous to read the report of the directors—cautious timidity and abject fear of the ingenious and terrible law of libel in every line referring to Capt. Vivian and his statements. As it is, unless the body of shareholders make some effort to put an end to the present blundering incapacity, it is easy to predict the end of the company.

A SHAREHOLDER.

#### THE PANULCILLO COPPER COMPANY.

SIR,—I saw it stated in the Journal that many holders of mining shares are losing heart in consequence of the present lull in metals, throwing their property on the market even at a great loss. It strikes me that many holders are not only losing heart but their heads as well. How can it otherwise be explained that such shares as Panulcillo were obtainable considerably under par. Surely only mad panic could have induced many to sell, I will say to throw overboard, their valuable property at such ruinous prices. Little more than four months ago Panulcillo found buyers above 6l., and this week holders have been willing to part with their shares at 3l., a drop of nearly 3l. No relapse in copper can explain such a fall, for other kindred shares have either not suffered or even show an improvement. New Quebradas are now the same as in the middle of January, whilst Rio Tinto and Cape Copper are materially higher. Panulcillos alone form the exception above shown, and why? I say without the slightest motive. Can it be denied that the company is now in a position more healthy and prosperous than ever? The advice just received from Chili give the answer. During the four months ending April 30 last the net profits were 14,000l., or at the rate of 42,000l. per annum. Allowing 4500l. for expenses in London, including debenture interest, 37,500l. clear remains for the shareholders—that is to say, 18 per cent. on the capital of 200,000l. The

floating debt is now entirely swept away, and 5000l. stands to the credit of profit and loss. A dividend at the rate of at least 10 per cent. per annum may be safely relied on in the autumn, when shares are certain to rise again to a high premium. Present prices are obviously absurd. A recovery must take place before long, and I can only advise those that recklessly threw away their property to buy back without delay, especially as the turn in the copper market seems at last to have come.

A PERMANENT SHAREHOLDER.

May 27.

#### HAND-POWER ROCK DRILLS.

SIR,—In an article in last week's Journal the writer explains that the machine is a new invention of Mr. Burton, of Paris. This must have somewhat surprised those of your readers who are acquainted with our hand drill, since it is almost an exact description of our machine now so widely known; we ask you, therefore, kindly to insert a few words of explanation. Mr. Burton is the sole licensee of our company for the French patent of this machine. This gentleman has, we hear, lately introduced some slight alterations in the stand and the feeding motion. We have not yet been put in possession of the particulars of these alterations, and cannot, therefore, say whether or not they will be improvements, and certainly the article does not point out clearly any variation in construction. We may say, however, that should Mr. Burton's ideas prove advantageous to our machine we shall not be slow in bringing them forward, since our view is that few machines are too perfect to be improved upon, though the demand there has been and is for our hand-power drill has led to the conclusion that it has a fair share of perfection and that it is a labour-saving machine of practical utility and general application.

T. B. JORDAN, SON, AND MEINER.

London, May 27

#### HINGSTON DOWN CONSOLS.

SIR,—In looking over the balance-sheet of this mine, to be presented at the half-yearly meeting of shareholders on Monday next, I notice the amount of 116l. 4s. 2d. charged as London office expenses, &c., which I consider excessive for such a mine, with the small amount of labour cost expended only averaging about 80l. monthly. If some shareholder present at the meeting would call the attention of the directors to this particular item they may be induced to make some reduction in this department. Another very important point of operation would be to resume the drive on the great lode alluded to in the agent's report, which has of late been suspended, as a lode of such size and indications cannot fail to become productive on further development.

A SHAREHOLDER.

Liskeard, May 27.

#### SOUTH POLGOOTH MINE (NEAR ST. AUSTELL).

SIR,—The water having been forked out to the 10 fm. level below adit, and the lode in the east end is from 10 to 12 ft. wide, and is worth 200l. per fathom. The lode in the west end is immensely rich, but not valued yet. The stope, as there is only one yet, is valued at 200l. per fathom; no such rocks of tin have been seen in this district for richness since the celebrated old Polgooth was in working, which paid in profits, I am told, over 750,000l.

MINER.

St. Austell, May 27.

#### SOUTH CAMBRIAN MINES.

SIR,—In last week's Journal I find your Correspondent, under the heading North Wales, Salop, and Cardigan, describes a visit paid by him to this neighbourhood from Talybont, and mentions seeing a fine new water-wheel at these mines, which he judged to be 40 ft., and a tramway to the same, and that he should have liked to have stolen a sample of the ores, but this was evidently not the place where they were kept. I can only say that if on his visit he had kindly called in at the mine residence he would have been made most heartily welcome to our mountain fare, and would have been shown over our workings with the greatest pleasure, and been welcome to take as many samples as he might desire or could carry away with him, either for the supply of the British Museum, or his own private information or satisfaction, or both; and if he will privately furnish me with his address, I will gladly forward him a box of samples. He was right in his estimate of the capacity of our new wheel, and I beg to inform him that our store of ores is kept at the adit mouth until our machinery is ready to deal with it, which I expect will be in fourteen days at furthest.

Manchester, May 27.

A. J. W. STRINGER, Sec.

#### WEST PHOENIX MINE.

SIR,—Since my last visit the sinking of the new engine-shaft has been suspended in consequence of an influx of water. To-day I am, however, glad to see it is being vigorously resumed, the water having been let down through a shallow adit brought up from the ground below. It is generally asserted and believed that the lode will be cut in from three to four months, by which time the engine will be ready to start, or at most a week or two later. The intersection of the lode in West Phoenix cannot but be looked upon with great interest. The productiveness of the various ends driving towards us from the Great Phoenix remain undiminished.

VISITOR.

May 26.

#### PARYS AND MONA.

SIR,—I shall be glad if someone of your numerous and intelligent readers will give me and others the true history of the Parys and Mona Mines. I have read and heard of five millions worth of copper having been taken from the great open-cast, and I have heard and read of a clear profit of fifteen millions sterling having been made by the former fortunate proprietors of these wonderful mines. And if I mistake not, Capt. Mitchell, the intelligent manager of Parys, is of the opinion—which he has expressed openly—that there is more to be found under the open-cast than has ever been taken from it! Should his opinion be correct, and his intersection of the five lodes seems to put it beyond a doubt, what a grand future there is in store for the fortunate Parys shareholders, and how near they must be to the Eldorado they have for years been so patiently seeking.—Calstock, May 26.

JOHN MILTON.

#### CHEAP MINING SHARES.

SIR,—Kindly allow me the use of the Journal to call attention to three foreign mining properties, the shares of which are now at a very low figure, and well worth the attention of investors.

No. 1.—THE ROSSA GRANDE.—The shares in this company were dealt in at 2s. each last autumn. Since then they have gone up to 17s. 6d. and 1l.; but a few weeks ago they fell to 5s., and that is about the present market price. The shares are well held, and I should not be surprised to hear they are sent up to 1l. any day.

No. 2.—THE TECOMA MINE.—I understand this mine is to be re-worked, and in America it is regarded as a good property. The shares are now at 5s. each, and I hear some parties have lately been buying them in large lots, as it is considered there may be a big "rig" in them very soon.

No. 3.—THE CEDAR CREEK GOLD COMPANY.—The gold mines of this company are considered in California to be a very valuable property. An effort was made a few weeks ago to reconstruct, but the plan was not considered a good one. A new scheme is spoken of, and if carried out the Cedar Creek shares may, like the New Zealand Kapanga shares, go to a premium. The Cedar Creek shares are to be had at 2s. 6d., and they are considered to be a good "spec." The Scotch investors have been buying them up lately, and they may send them up to a good price, as they did the Flagstaff shares the other day.—May 25.

A LOOKER-ON.

[For remainder of Original Correspondence see this day's Journal.]

CASSELL'S PUBLICATIONS.—The History of Protestantism, part 12 brings the subject down to the date of the Augsburg confession 1530, and completes the volume. Science for All, part 31, contains papers on some very old rocks, by Dr. C. Callaway; on the Cession of Life, by Robert Wilson; on a Diseased Potato, by Mr. G. Smith; and on Emerald and Beryls, by F. W. Rudler. The Great Industries of Great Britain, part 29, contains continuation of the articles on cotton, industrial legislation, shipbuilding, health, and

disease in industrial occupations, iron and steel, and wool and worsted. Knight's Dictionary of Mechanics, part 42, extends from Lighthouse to Locomotive.

#### REPORT FROM CORNWALL.

May 27.—We can hardly be said as yet to have recovered from the combined effects of the last drop in the tin standard, aggravated by the Whitsuntide holidays, made exceptionally stringent in their operation as these were by the celebrations in connection with the visit of the Prince and Princess of Wales, and the laying of the foundation stone of the cathedral. But for the holidays, indeed, we are inclined to think there might have been a fair show of recovery, for there is less disposition than ever to believe in the authoritative character of the fluctuations of the London metal market, to which our smelters seem to have no other idea than that of saying "ditto." It is at any rate satisfactory in the midst of so much depression—very real however—unreal the causes may be—to find such excellent reports presented as that of the directors of Devon Consols, which is now likely once again to be a prosperous mine for many years to come; to find Wheal Kitty paying dividends, and Blue Hills and Penhalls once more making way. That there should be in connection with the latter another abolition of a London office was almost a foregone conclusion. London offices are not in favour in Cornwall; they are regarded as at the best expensive luxuries, which a well conducted mine can very well do without, and the examples of nearly all the most prosperous mines of the present generation may very well be quoted against their utility. The fact is that the management of a mine to be efficient must be local, and this cannot be the case when a London office is no more than a name. The experiment has been tried over and over again, and there is hardly an exception to this rule. It must be borne in mind that what with the extension of railway accommodation and the development of telegraphic facilities the position of an "out adventurer" is very different to that of a quarter of a century ago, and that for those who are genuine investors, and not the mere speculators of the moment, there are now abundant opportunities of looking after their own interests. As to the latter they may always be trusted to take care of themselves. In the present strain put upon an industry which has had so much to bear one of the first essentials is that all expense which is not absolutely necessary shall be avoided.

The remarks made by Capt. A. James and Capt. Teague at the Tincroft account on the state of the tin market, are every way worthy of consideration. It is a gross anomaly that the state of affairs against which they protested should exist, but we question whether either of these gentlemen have hit upon the remedy. The smelters had some very plain speaking from both, but not more than the case deserves, for they had the power of leading, if not that of absolute control, still left to them, until they by this action threw it away, and followed the lead, "not of millionaires," as Capt. James said, but of "men who could scarcely raise 500l."

Capt. Teague, speaking, we presume, as a smelter and a miner, continues to advocate the ticketing system, the only advantage of which, so far as we can see, is that it would for the time introduce an apparent element of competition. The appearance of the thing without the reality would, however, do very little good, and hitherto the smelters have shown so little disposition to independent action, and of late such exceptional timidity, that we do not for one moment imagine that on the one hand there would be any competition worthy of the name, or on the other that they would not take very good care to secure themselves by a wide margin against any fluctuation of the market between the day of offer and the day of absolute sale. We do not say of necessity ticketing would make matters worse than they now are (though it might even have that effect), but that it would seem to provide a remedy where it really afforded no relief, and thus stand in the way of any real improvement.

Capt. James proposed the formation of a syndicate to buy up the whole stock of tin and control the market—a bold and, for the time, possibly a successful scheme. With the large amount of capital that is known to be invested in the business there ought to be no difficulty in raising the amount of money required. There are, however, several difficulties in the way. There are the diverging interests to reconcile of those who wish to maintain the market on a proper business foundation, and of those who find their account in unsettling it; and although the latter, probably, would be unable to stand against such a syndicate as that proposed, they would be able to operate in such a way as materially to reduce the profit margin on which Capt. James relies. Of course, in doing this prices would be forced up; but they would be forced up in the speculative and not in the permanent sense, and further unsettling would of necessity follow. Besides, in dealing with the tin on the market we are not dealing with a fixed quantity, but with one which is subject to continual fluctuation and fresh supply from abroad as well as at home; and if the market is to be controlled effectually it must be controlled permanently, and the syndicate must always be prepared to assert their position against all comers. They might do this when prices were low, but how would they prevent these fresh supplies from flowing into the market through other channels when prices were high? The scheme would then be unworkable. Besides, it is never safe to trust to artificial interference with the course of trade in any direction. Freedom of trade—alike from artificial monopolies and from artificial fluctuations—is the one thing it needs for its prosperous relations; and though combined action may be needful and advantageous in stamping out abuses, it can never be of long duration, which in the long run the laws of supply and demand must rule. It might help on a good result if our leading mines were to restrict their sales, and "stacking" were practised upon a tolerably large scale; but there are difficulties in the way here also, and unless our mines are prepared to make a bold step, and smelt and sell for themselves, they must be content to have patience.

#### REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

May 27.—The coal trade of North Wales is as depressed as it has been at all, if not more so, so that the collieries that depend chiefly upon home consumption find it difficult to keep going. It is, therefore, an inauspicious time for new collieries, and those that have recently restarted.

The North Wales Quarrymen's Union held its annual meeting at Llanberis last Saturday. There are 6766 members in the Union, and their ordinary subscriptions last year amounted to 1310l. Besides this amount special collections were made towards assisting the emigration of such of the members as were willing to emigrate, 694l. was applied to this purpose, 915l. was voted to members out of work, and payments amounting to over 480l. were made in connection with disputes. Last year was one of great depression in the slate trade, so that there was a great drain upon the funds of the Union. The president for this year is Mr. R. Parry, of Llanrug.

The time of working has recently been limited at several of the quarries in Caernarvonshire. It is as well to give publicity to the impression that this limitation has not been so much necessitated by the condition of trade, as intended as a sort of reprisal for the political independence of the men at the late election. I hope for the sake of the reputation of the employers that this is not so. I have heard a good deal of wild talk among land agents and the like while travelling lately of coming retribution for refractory electors. But if they are wise they will let all such talk subside. The Welsh people are very patient and law abiding usually, but when once they are aroused they have a singularly effective way of taking the law into their own hands.

In Cardiganshire lead mining enterprise is reviving, and a hopeful spirit prevails. A private company has taken up the Neuadd Llydd property, on which a good discovery of lead ore was recently made, and mining operations have commenced. The name of the mine will be the Bryn Dyf Lead Mine. It is the most northerly mine in Cardiganshire. At the next mine southwards, Ytradroneir, 7 tons of lead and 20 tons of blende were sampled last month. Numerous mining properties, too, are in the incipient stage, covered by back-notes.

The project of a railway up to the slate quarries and mines of Llangarnog is again agitated. If the movement could only take a



practical shape, and with a united general effort succeed, it would be the means of opening up a rich mineral district.

#### REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

May 27.—The impression gains ground that furnace and forge coal must shortly be officially reduced. The pits at present are not making more than three or four days a week, and as showing how the demand has of late fallen off, an instance is mentioned to me in which one colliery firm who all through the depression have up till recently been selling 1000 tons weekly, are now only raising half that quantity. Similar cases, though of not so aggravated a character, might also be quoted. The lessened work doing at the blast-furnaces and the mills and forges has been the chief factor in bringing this about. Pigs were selling tardily at the meetings of the trade yesterday in Wolverhampton, and to-day in Birmingham. Consumers have mostly ordered forward sufficient to meet all requirements. The current output is in excess of the demand, and as a result stocks in makers' yards are growing. By-and-bye purchasers will have used up all they have on order, and then selling with freedom will recommence, but this is not yet.

The finished iron trade was unsettled by the drop of 1*l.* per ton in marked iron bars, sheets, and plates which Earl Dudley and Messrs. Barrows declared as last week closed, and which the other "list" houses have this week declared. Marked bars now become 8*l.*, with 8*l.* 12*s.* 6*d.* as Earl Dudley's price. The new quotation for sheets is 9*l.* 10*s.* to 10*l.*, and for boiler-plates 10*l.* The reduction brings prices of branded iron back to the level at which they stood at the close of last year. It was on Jan. 1 that by a rise of 1*l.* per ton bars became 9*l.*, and now that 20*s.* is taken off again. Tinned sheets are declared down 2*l.* on the week. The medium and common iron makers will be little if any affected by the drop. Their prices have already gone so low that they affirm that it is impossible for them to accept less.

An important meeting of the South Staffordshire Mines Drainage Commissioners was held in Wolverhampton on Wednesday. It was called to consider the arbitrator's draft award for the amalgamation of the Tipton and Bilston districts. It will be remembered that the Bilston district is drowned out, and the arbitrators were of opinion that if the two districts were joined the commissioners would be enabled to levy a rate upon the two districts, which the Tipton district alone could not bear, and so raise money for the more effectual working of the Commission. The debt upon the Tipton district is 70,000*l.*, and in the event of amalgamation Bilston would have been equally saddled with Tipton in paying the debt. Before the award, however, could become law four-fifths of the commissioners present had to give their sanction to it. Upon being put to the meeting fifteen voted for the award, and five against. The award was, therefore, rejected; and nothing now remains but that the Tipton district should make the best of its position alone, or that there should be a new draft award got out. The state of affairs for the interests of coal mining in South Staffordshire is serious.

**BOILER EXPLOSIONS, AND THE PATENT LAWS.**—The Recorder of Walsall, Mr. J. S. Meall, in charging the Grand Jury on Thursday, said the recent boiler explosion at Walsall was a most melancholy and appalling lesson of the danger that surrounded all modern machinery connected with steam, and of the necessity of adopting all safeguards that invention could suggest. It was within his knowledge that a patent to prevent boiler explosions, and which had every prospect of rendering such an accident as the recent calamity all but impossible, but was delayed and would probably be lost through the unjust action of the Patent Laws. There was no law which ingenuity could frame which would confer a greater benefit on trade and commerce, and also on humanity at large, than a reform in the Patent Laws by the reduction to the smallest and most nominal amount of the fees and costs in taking out new patents, and in the place of such reduction the substitution of an ad valorem duty of (say) 5 per cent. on every sale or transfer of every patent which by its success had become valuable. The comparative trifle for which patents could be protected in America was one great cause why she had gone ahead of us in scientific matters.

#### REPORT FROM DERBYSHIRE AND YORKSHIRE.

May 27.—Business at the mines and ironworks in Derbyshire has again got into its ordinary track after the holidays, but it cannot be said that it is really brisk in any department. Lead mining seems to be carried on in a particularly quiet manner, there being no speculation on the part of those capitalists who take an interest in mining ventures, Derbyshire being evidently tattooed by them. The consequence is that the trade is left in a comparatively few hands. There are a good many mines said to be worked, but only a very few that can be said to be in a healthy and profitable condition. The ironworks are not so busy as they have been, but the produce of the furnaces keeps up to the average, a large tonnage of ironstone being imported for Northamptonshire. Consumers of pig in various iron making districts, including Lancashire and Staffordshire, have purchased somewhat sparingly of late, as they are evidently looking forward to a still further decline in the price, which is certainly not at all unlikely, as the markets for some time past have been in a rather shaky state. Merchant iron has been in tolerably fair request, but far below the power of production so far as the mills are concerned. The foundries are not so busy as they have been, although there are a few orders in hand for gas and water pipes, specialties for which some of the Derbyshire foundries have long been noted. The coal trade has in no way improved, notwithstanding the fact that but little work was done by the colliers last week. For house coal in particular the demand has seriously declined of late, yet the production is sufficiently large as to nearly deluge all the markets, and so cause prices to fall below the paying point. Unlike most other businesses, that of coal cannot be stopped altogether, seeing that whether working or not men have to be employed in keeping the roads and workings clear, and clearing away falls. Derbyshire has by far the largest share of the trade with the Metropolis, but that market has fallen off considerably of late, and prices have come down as well, so that it is doubtful whether any profits are actually being realised on the coal sent there. Steam coal goes off better, this being what may be termed the busy season; still the demand is below what it usually has been for the time of year. Engine coal is also in comparatively moderate request, but there appears to be a good demand for coke for smelting and other purposes.

The leading works in Sheffield are still busy, and indeed trade in the town may be characterised as good. The mills are running full on, there being heavy orders in hand for ship and other plates, as well as sheets, bars, hoops, and telegraphic and other wire. The output of armour plates is still tolerably heavy, and there is no doubt that an extensive business will be done in steel-faced plates for vessels of war on the part of our own as well as foreign Governments. Bessemer rails are still in active request, and now that the price has fallen to about 8*l.* per ton the directors of railway companies appear to have more confidence in giving out orders. The price named has been quoted of late in consequence of the marked decline that has taken place in the value of hematite pig. Bessemer steel is now largely used in the manufacture of cutlery and other goods, and of course is produced at a much less cost than the cast-steel. For the latter, however, there has recently been a much better enquiry, and the leading houses are now much busier than they have been for a long time. Makers of sheep-shears are now working well, there being good orders in hand from Australia and South America for our manufactures, and by the introduction of machinery have been able to compete with the American and other makers, not only in price but in the quality of the material as well. In cutlery a steady business is being done for the home, continental, and American markets, and there is some competition going on between some of our makers of inferior knives and those in Germany, the latter producing a showy article of common material, which goes off in consequence of its appearance. At the foundries business is rather quiet, more especially as regards ranges, stoves, grates, and ordinary light and ornamental work. Engineers and machinists are better employed than they have

been, whilst bolt, nut, and shovel makers continue to be fairly employed. The coal trade of South Yorkshire is in anything but a healthy state, and comparatively little is being done in house coal, either to the London or other markets. Steam coal, however, finds a ready sale, and a good deal is being shipped from Grimsby. The colliery owners are now looking forward to the passing of the Bill for the construction of a railway from Hull to Barnsley, and which would be of the greatest benefit to them. A meeting in favour of it was held at Barnsley last night (Wednesday), presided over by the Mayor, when resolutions were passed pledging the town to support it. The miners of the district are also about to have a large demonstration in its favour, and strong hopes are entertained, despite the opposition it will receive, that it will pass through the Committee of the House of Commons.

At Upstone, a few miles from Sheffield on the Derbyshire side, the Summerley Colliery, belonging to Messrs. Rhodes and Son, has been closed owing to the state of trade, and will not be re-opened until there is a change of a marked character for the better. A large number of men and boys have, in consequence, been thrown out of employment, and in the present state of trade it will not be an easy matter for them to obtain work at other pits.

#### TRADE OF THE TYNE AND WEAR.

May 26.—This week there has been a stronger feeling in the Coal Trade. There have been large shipments of coals and coke to Cronstadt. The shipments from the Tyne Docks have been well sustained all the past week, and from the Northumberland Dock they have also been satisfactory. Large shipments of pig-iron have been made from Tyne Dock.

The iron shipbuilding yards continue to be kept busy, and the prices lately got have been fair; there are many enquiries at present, but many owners are holding back, expecting to get lower quotations, owing to the fall in the price of iron. At any rate enough work will be got to keep the shipyards busy during the present year. Keels for new vessels continue to be laid, and the supply of iron for the building-yards is well maintained. The special features of the business is the fact that though several vessels are in a very advanced stage of construction others are being got into frame, and behind them keels are being laid for more new vessels in nearly every instance after a launch. The demand for second-hand steamers is not very strong; owners and managers prefer new vessels with all the modern improvements, and adapted to the trades into which they intend to place them.

The enquiry for Northumberland steam coals has improved. The advance made in the early part of the year in the price of this coal for April and May delivery has been pretty well established, and the business is expected to be good during the next two months. The demand for coals for the Upper Baltic is improving. Durham second-class steam coal is also in better demand, and it is hoped that a rise of 6*d.* per ton will be got in this coal soon.

There is a fair enquiry for coke and gas coal; shipments continue to go on steadily. The shipments of coal, iron, fire-bricks, and general goods at Tyne Dock have been larger during the past week, as compared with the previous week.

The coal trade of the pits south of the Wear is increasing in briskness in anticipation of the early opening of the new docks at Hartlepool. When these extensive new docks are opened at Hartlepool it is expected that more large steamers will enter that port, and preparations are being made to increase largely the output of steam coal in the district to meet the increased trade expected.

At Castle Eden Colliery, where the works were partially flooded a short time ago, there is much activity. Powerful pumping machinery has been erected to provide against any possible emergency. The company are gradually increasing the area of their workings, and at the second shaft coal drawing has been commenced. It is intended to build 200 additional workmen's houses here. It appears that there is a scarcity of workmen in the locality.

The Trimdon Grange and East Hetton Collieries were sold by auction in London last week. Those important works were disposed of to Mr. Walter Scott and partners, contractors, of Newcastle, the price being 30,000*l.* Looking at the extent of the works, and the large amount of valuable machinery in them, the price is very low indeed, and if anything like fair profits can be made in the sale of the coal the bargain must be a good one. Of course this depends on the state of the coal seams, the quantity of water to lift, &c. The four pits produce good steam and coking coals.

The price of coals is still far from satisfactory, especially the price of house coal. The house coal trade, once the best in the district, is now the worst; this applies to the Thames and other markets. The Thames is flooded with coals by steamers, and consequently the price received leaves little if any profit. The coal merchants in London were much blamed for this state of matters a short time ago, but if the charges brought against them were true the question is often asked why the coalowners do not adopt some course, and attempt at least to bring about a remedy. Sundry unlimited supplies of coals to the Thames, which must be sold for what they will bring, do not appear to be calculated to effect any improvement.

The restriction movement by the miners in Durham, though condemned by the executive of the Miners' Union, and also by the majority of the miners, has not been entirely relinquished. A rather powerful section of the miners, comprising, with a few others, most of the men employed at the extensive collieries of the Marquis of Londonderry, condemn the action of the Union leaders in this matter, and still adhere to restriction of the output. A general meeting of the members of this section of the men is to be held shortly at Silks-worth, near Sunderland. It is to be regretted, as any dissension amongst the members of the large union of miners in Durham must have an injurious effect on the main body.

The Iron Trade has been firm during the past week. Buyers have been endeavouring to buy iron at about 36*s.* 6*d.*, but makers ask 38*s.* to 31*s.* 6*d.* for No. 3, and the same figures are quoted for warrants. The deliveries for Scotland have been fairly good this week, and shipments generally are promising better. It is feared that the holidays and the ironworkers' strike are likely to occasion some increase in stocks. The Cleveland iron market has been less affected by the Scotch markets of late. Some merchants offer to sell No. 3 for the last half of the year for 37*s.* 6*d.* Manufactured iron is dull, and prices are tending lower. Ship plates, 6*l.* 15*s.* to 7*l.*; bars, 6*l.*; angles, 5*l.* 15*s.* to 6*l.*; iron rails, 6*l.* 5*s.* The Teesside Iron Company have secured a good order for India for bridge work. Coal and coke are weaker at Middlesbrough. Unscreened coals for furnaces 4*s.* 6*d.* at the Durham Collieries. Best furnace coke, 11*s.* to 11*s.* 6*d.* ditto.

At Middlesbrough on Tuesday there was a rather quiet feeling; not much inclination to do business. Merchants are offering forward in some cases, but there is not much speculative spirit. The stock of warrants is increasing, Messrs. Connal having to-day in store 83,838 tons, an increase of 1128 tons since last market. The regular quotation by middlemen was 36*s.* 6*d.* No. 3, for early delivery.

Shipments of pig-iron continue steady, and from the arrival of vessels in the Tees to load for America and elsewhere it is expected that there will be a large shipment for next week. The returns for May are expected to be favourable. Last week the shipments amounted to about 16,000 tons, Germany being the chief customer. The advices from America are not satisfactory. That country appears to be glutted with most kinds of iron, both raw and manufactured. Of course, manufactured iron is falling in price. Bars and angle iron, 5*l.* 15*s.*; iron rails, 6*l.*; ship-plates, 6*l.* 12*s.* 6*d.* The foundries, though slack, anticipate more orders. Two furnaces are to be blown-out at Seaham. The manufacturing coal trade is very dull, and prices low. Coke in less demand, at 10*s.* to 11*s.* at the ovens.

**ACCIDENTS IN MINES—VISIT OF THE ROYAL COMMISSION TO BOLDON AND HARTON COLLIERIES.**—On Wednesday last the members of this Commission visited the above collieries. The gentlemen comprising the Commission are Prof. Smyth (Chairman); Sir George Elliot, Bart.; Mr. Lindsay Wood; Mr. W. T. Lewis (Aberdare); Mr. Thomas Burt, M.P.; and Profs. Abel and Tyndall; and they were accompanied by their secretary (Mr. A. J. Williams), Mr. G. C. Greenwell (President of the Northern Institute of Mining and Mechanical Engineers), Mr. Bunning, and many others. They had

arrived from Scotland on the previous evening, where they had examined the workings at the Blantyre Colliery. At the Boldon Colliery they were shown the effect of different descriptions of blasting, and the gas detecting instruments of Prof. Forbes and Mr. Livinge were tested. The instrument of Mr. Livinge, of Holywell Hall, Durham, is to detect very small quantities of gas in mines, especially in the return air-ways. It is already known by repute to mining engineers, and it enables the miner to detect considerably smaller percentages of gas than has hitherto been possible. It can also be used as a lamp for travelling in a very explosive atmosphere when it would be impossible to carry a safety-lamp. It is capable of detecting when even one-fourth of a per cent. is present, and is particularly valuable for the extraction of the various returns of the districts of a colliery to show whether the amount of air at any particular part of a mine is ample for the gas then evolved, and it enables the air to be regulated in the various divisions in the most economical manner. The instrument of Prof. Forbes, of Glasgow, for accomplishing the same object depends on a well-known principle in acoustics—that the sounds produced by the vibration of a tuning-fork placed over a column of air contained in a tube become very much more audible when the column in the tube is of a length suitable to the pitch of the note produced by the fork, and that the length of the column is influenced by the specific gravity and nature of the various gases which the tube may contain. This instrument also may be taken in advance of a lamp in places where gas is expected in excess. A phosphorescent powder is placed in a cavity so that the readings can be taken in the dark. There is also an arrangement for testing whether the gas or air in the instrument is the same as the air in the particular part of the mine under examination. The Commission next proceeded to the Harton Colliery, South Shields, where experiments were made with explosions of coal dust, and of other kinds of dust.

#### REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

May 27.—The bill promoted by the Midland for the absolute purchase of the Monmouthshire Railway by the Great Western has been strongly opposed by the leading freighters and others in the district of Monmouthshire. The Midland Company, as is well known, oppose the bill most strenuously unless they are conceded running powers to Newport. The Town Council of that town have now backed up the opinion expressed by a public meeting of the inhabitants, and have agreed to support the Midland in their opposition, on the broad principle that competition is good for trade. The Mayor (Mr. H. Russell Evans) and two other members of the Parliamentary Committee have been authorised to attend before the Parliamentary Committees to give evidence.

A balance of 49,515*l.* now remains of the money raised on behalf of the sufferers by the Abercarn Colliery explosion, which happened in September, 1878. The Court of Chancery has recently sanctioned a trust fund; the trustees nominated being Sir Thomas Owen (late Lord Mayor of London), and Mr. C. S. Grundy, Mr. A. B. Forwood, Mr. H. Moses and Mr. W. Taylor (who were Mayors of Manchester, Liverpool, Newport and Cardiff respectively at the time of the disaster), Mr. Thomas Cordes (late M.P. for the Monmouth Boroughs), Lord Aberdare, Mr. Ekersley, and Col. Lyne. The trustees have signed the deed, and appointed as bankers of the Trust the National Provincial Bank of England (Newport branch); Mr. Edwin Grove, Newport (secretary), and Mr. Whittaker (of Manchester), and Messrs. Slade and Laird (of Newport), auditors.

An important case has been heard before the Swansea Stipendiary Magistrate, and arising out of the action taken by a section of the men reducing the make. Two tinmen were summoned by the Llan-sunlet Tin-plate Company for having committed a breach of contract at the Worcester Works by reducing the make. It was alleged that the company were extensive losers by the action taken by the employees. The case was adjourned for a week in order that the summons might be amended, and the ultimate decision is looked forward to with great interest by both masters and men.

The Iron Trade of the district has undergone but very little change since last report. There is no doubt that the demand for finished iron and steel has to a great extent fallen off; but still there is about the average amount of business doing at the various works. The clearances made have been very large, these having principally been to the United States, thus showing that the orders for that quarter are being rapidly finished off. Orders are also in hand for India, Canada, and Australia, and ironmakers by no means despair of better days coming; as it is, prospects for the future do not look over cheerful. Prices are tolerably firm, and do not seem to have a tendency for lowering. Merchant bar is in fair request. Pigs are unchanged in value. Tin-plates are comparatively unaltered.

The Coal Trade has been brisk, and shipments have been maintained up to the average. Steam qualities are well enquired for, and some good orders have been taken at late rates. Prices, however, are firmer, and have apparently reached their lowest ebb. The collieries are better employed as a rule. House coal is in fair demand for the time of the year, and anthracite fetches rather better rates. The men at the Coedcae Colliery, belonging to the Plymouth Company, have been on strike, and are now, on a question as to the loading of fuels. The Neath Merthyr Collieries have been re-started. Patent fuel has been rather quiet, but clearances have been on a larger scale, and prices are firmer. For best descriptions of coke quotations have been good.

#### REPORT FROM THE FOREST OF DEAN.

May 27.—The coal trade is rather more sluggish just at present as compared with the date of our last report, and the iron and tin-plate trade also partake of the dullness of the times, short time more or less characterising nearly the whole, with the single exception, perhaps, of Mr. Chivers's works. Messrs. Thomas, of Lydbrook and Lydney, do not find full employment for their men, and at the forges of Lydbrook and Cinderford the hands are not fully employed, orders being slow in coming in; and the same condition of things rules at the furnaces and coke-yard, and iron mining, too, is on a restricted scale, so that no local trade can be described as brisk at present. The western side of the Forest is in a much worse plight than the eastern side is, but dullness is the general characteristic of the local trades.

Within the last few days a number of the small railway projects which were formerly publicly ventilated have been again revived; but whether for "bogus" purposes, or bona fide proposals, remains to be seen. Some of the small lines named, we have reason to believe, are intended to be carried out. Indeed, it is asserted that the contract for constructing the short links to connect the Bulbo branch with the Forest Central Railway and the Severn Bridge has been taken by Mr. John Greenbank, of London and Florence. The first link named is a short one (under 2 miles we believe) from near Shakemantle by a circuitous route under and through a portion of, Stopledge Wood to the old Roman road from Sewdley, and then across to meet the Mid-Forest line, which it is intended to join and use as one road to near the village of Blakeney, and then branch off via Nibley and Elloe to the Severn Bridge close to Gatcombe. These proposed links to open up a continuous line from the bridge to Cinderford, and thence per Whimey and Mitcheldean-road (Forest Junction) line to Ross and Hereford, would undoubtedly be a great boon to the public having occasion to travel the route. And if the company desire to avoid contact with Bilson Truck-yard and the coal traffic a short loop line from near the old dam by the side of the tramway to the old weighing-machine, a short distance from Bilson House and opposite Bilson yard, where several roads meet, and then by a curve to the line running from the coke-yard to Lightmoor, a junction with Bulbo branch would be again effected, leaving the company's weighing-machine and truck-yard free of interruption.

The station for Cinderford (passenger traffic) should be constructed at the corner where the roads cross each other, contiguous to the gasworks, as, being central it would best consult the general convenience of the neighbourhood. But another link line is proposed to run from Coleford (as a continuation of the line from Monmouth) to join the Mid-Forest line adjacent to the Fancy at Moseley Green. There can hardly be two opinions as to the public convenience being much consulted in the proposal, should it be carried out, besides the fact that it would furnish additional accommodation to men of local business. The link would shorten the route to Gloucester from Coleford, and most likely make Bristol more accessible. At present persons from Cinderford cannot reach Bristol via Severn and Wye and Severn Bridge line till close upon twelve noon; but if the Great Western had a line direct from the district to the Bristol and South Wales Union Railway a run to Bristol would be less difficult and less expensive, notwithstanding that the Great Western Company is far from being addicted to issue cheap fares.

The Severn and Wye line gives improved facilities to the western side of the Forest and to Lydney, but poor passenger accommodation to the eastern side. The Severn and Wye Company deserve commendation for being the first to introduce passenger traffic, but being so circumscribed, it is unable to land its traffic in distant towns without higher charges, its action being limited to the large companies of the Great Western and Midland systems. The best thing the Severn and Wye Company could do would be to sell their entire property to the



Midland Company, because under present circumstances it is impossible for the Severn and Wye to do that which will ensure success and public approval. The company's sphere of action is too confined. We may mention, too, that the Great Western Company has it in purpose to construct a line from Mitcheldean Station across the country to Newent, and thus form an outlet for that coal field and on to Ledbury, so as to form a competing line to the Midland Company into the Midland Counties. These are the rumours afloat, but, of course, as similar rumours have been in circulation at former dates, we are under some uncertainty how far the rumoured proposals may ripen into fact.

## Meetings of Public Companies.

### DEVON GREAT CONSOLS COMPANY.

The ordinary half-yearly meeting of shareholders was held at the offices of the company, Austinfrans, on Wednesday, Mr. PETER WATSON in the chair.

Mr. W. H. ALLEN (the secretary) read the notice calling the meeting. The report and accounts were taken as read.

The CHAIRMAN said: Gentlemen, I have so much to tell you that I scarcely know where to begin. At the same time I think the report is so full and so explicit that I think on the present occasion my duties will be somewhat light to what they have been heretofore, when I have had the pleasure of occupying the chair at these half-yearly meetings. We all know that in connection with mines and other industrial undertakings there have been many difficulties to contend with during the past two or three years, and we have had a great deal of uphill work to fight through and surmount those difficulties, but I think we may now say that we have got into smooth water. (Cheers.) To the old shareholders I address myself more particularly, because they know how I first became connected with the company as a director. I was unanimously invited to come on the board and do my best for your interests in the year 1877. On that occasion I promised the shareholders that if I went into Devon Consols I would do my very utmost, unfettered in every shape or form, for the interest of one and all. (Cheers.) I hope to-day the meeting will approve not only of the course which I have pursued, but also of the action of the present directors. Twelve months ago I said it was only by close attention, by energetic work, and by proper organisation that we could hope to overcome the difficulties which beset us on all sides. We borrowed large sums of money to surmount our difficulty; but those have all been repaid, and we have now what I consider a clean sheet before us. (Cheers.) On the last time that we met a shareholder suggested that it was always "hope—hope;" that we could not live on "hope." I said—Yes; I could give "a double hope" in the expectation that we should have a dividend before we met in May—at any rate, we should have one in May. Now, gentlemen, you know what has transpired in the last six months. To go through the report, as I think it will be best to do on this occasion, you will see that we sold during last half-year 5294 tons of copper ores at an average of 22.14s. a ton, realising 14,308*l.*, against, in the previous six months, 4989 tons, at an average of 2*l.* 2*s.*, realising 10,522*l.*, being an increase of only 12*s.* per ton in the price obtained for the ore. Well, now gentlemen, when you come to look back that is a very low price indeed. When we go back we see that in 1847 the average was 6*l.* 1*s.*, in 1857 6*l.*, in 1867 10*l.*, in 1873 2*l.*, in 1879 2*l.* 2*s.*, and in the last six months 22.14*s.*. Therefore, you will see that if we had a greater advance in the price of copper, our accounts would have looked a very great deal better. On the same side we give you the arsenic sales. Our arsenic sales have been exceedingly good, and we have realised during the half-year no less a sum than 15,517*l.* 5*s.*, which, I think, is about the largest sum we have received for arsenic in any half-year. (Hear, hear.) The next thing, gentlemen, is this. You will remember that we had a leasehold property which was put down in our books at 2600*l.*. That has been sold for 3000*l.*, being 400*l.* more than it stood at in the books of the company. The next thing is "Farnor View;" no rent was ever received from the late manager, who lived there rent free. The purchaser, Mr. Moses Bowden (whom I am happy to see here) has taken up his abode there, and pays a rental of 50*l.* a year. The expenditure side of the account is also very large, but this is easily accounted for, and I would proceed to explain the reason why. As the report says:—

During the last six to eight months your directors have purchased no less than seven rock-drills and one air-compressor and receiver, with a large quantity of tubing, so as to carry on without intermission the greater expedition of the driving of levels, and thus laying open a greater extent of ground than could be executed by hand labour. Well, various other quantities of materials and machinery have been bought, and altogether what we have done at Watson's we have laid out something like 5000*l.*. Then we come next to the expenditure for flat-rods—280 fathoms—which has been attached to Richards' large water-wheel. That is for the purpose of pumping out the water from Watson's part of the mine, which you may remember was suspended when Devon Great Consols was exceedingly rich, and at that time they suspended these operations, and they had never been re-started until last half-year. We have spent a very large sum of money on that. That is all paid for, and is included in this account. I am happy to say, whilst on that point, we have received to-day information that the water is out of the mine, and the purchaser, who has arrived in town this morning, has brought up a box of ore for you gentlemen to see, which to me and to him is exceedingly gratifying. I will leave him to produce them by-and-by, and tell you all about it. Well, gentlemen, we have got a very large quantity of iron, steel, coal, and timber, which we purchased, and I called attention to this last November. We bought it exceedingly cheap, and that stock is for something like six or eight months. Of course we are absorbing that gradually, and before next November we shall have to lay in a further stock of coal, iron, and timber, tubes for the rock-drills, and various other things which will require a large sum of money. The result of all this is that we began with a balance of 2800*l.* on Oct. 31, 1879. We have left the half-promise I made in November last, by the payment of a 40 per cent. dividend (8*s.* per share)—namely, the 151st dividend, which was declared by the directors on Feb. 23, which absorbed 4096*l.*, and you will observe that there is a balance of 11,271*l.* 17*s.* 6*d.* in favour of the company up to the making up of these accounts on April 30. Since that we have paid a cost. Well now, gentlemen, after the payment of this 5000*l.* before stated I think you will agree with me that that 11,271*l.* is a satisfactory amount. (Cheers.) We have had a very great uphill work to surmount, but I hope and trust we have surmounted it, and I hope we have given you satisfaction in what we have done. For myself personally, I may say that a heavy responsibility was thrown on my shoulders at the time that I was almost deserted, but I stuck to the ship—(applause)—as I had, and still have, the largest interest in the concern, and it is a pleasurable duty for me to have to attend to your affairs, and the only recompense I can have is to give you satisfaction, and to hear that you approve of what I have done, of what my colleagues have done, and of what the officers are doing—the purser, manager, and agents,—and all at the mines at the present time. (Hear, hear.) I may say that we are all going on very harmoniously. Miners' wages are better than they were. We have counteracted the tendency of the last half-year, which was the tendency of the benefit of the mine, to give them four holidays in the year—this is, on Easter Monday, Whit Monday, Midsummer Day, and the day after Christmas Day. We have no "maze" Mondays or anything of the sort now, but all are very well satisfied, and all are working harmoniously together for the benefit of the undertaking. (Hear, hear.) You will find in this account what you have not found in it before at Devon Great Consols, I believe, that is the engineer's report. The engineer is Mr. William Mathews, one of the best engineers in the West of England. He has been engineer to this company I think for about 35 years. He is a very excellent man; he pays every attention to his duties there at the mines, and I think we are very fortunate in having a man who takes such great interest in it. The next statement is that on page 214, and I think you will say with me that that is a most extraordinary statement for any mine in this country when you consider the number of shafts. We have 12 shafts, the total pitwork is 1724 fms.; two man-engines, one at Wh. Josiah, 144 fms., one at Wh. Emma, 190 fms.; length of our drivages, winzes, rises, and shafts is 36,106 fms.; or, in other words, 5½ miles of winzes, rises, and levels; the length of the tramways underground is 4887 fms., or, in other words, 5½ miles; our steam-engines number 10; we have 11 large water-wheels; the length of rods is 2420 fms.; the length of our railway is five miles. It is a very excellent railway, and I hope and trust that if any of the shareholders want a holiday this year they will go down to Devon Consols. The manager would take them over this railway and let them examine it; and if they are talented engineers I should like to have a report from them as to its state. (Hear, hear.) You will be taken over five miles of railway, in some of the finest scenery in England, and you need not be ashamed to take your wives, sisters, mothers, or cousins, I can tell you. (Laughter.)

A SHAREHOLDER: What accommodation is there?

The CHAIRMAN: There is every accommodation at Tavistock. To return to the report, you will see that we have one mile of railway for conveying stuff from the new shaft, railway shaft, and Agnes' shaft to the main dressing-floors at Wheal Anna Maria; we have two locomotive engines—they have not got better on the Great Western—(hear, hear)—they are not better in the Flying Dutchman; we have 60 ore and timber wagons, the whole of them in perfect order; inclined planes 549 fathoms, ordinary inclined planes throughout the mines at surface 443 fms., length of tramways at surface or dressing-floors 1700 fathoms, 250 fms. of dressing-floors. The arsenic works cover an area eight acres, so you see what a capacity we have got for turning out large quantities of arsenic, even larger than we now turn out. Then we have a laboratory for the analysis of all ores going to the arsenic works. The length of your mines from the western part of Wheal Anna Maria to the extreme limits of the sett eastward is 25 miles in length; the number of places working underground—shafts, drivages, winzes, rises, stopes, and one tribute pitch is 45; we have a large extent of precipitate works for the extraction of copper held in solution in mineral water, and so forth; and then we have a foundry, smiths' and carpenters' shop, a saw-mill, crushers, hauling machinery, dressing-machinery, and other requirements throughout the mine; docks and floors at Morwellham to be kept in repair for shipping copper ores, arsenic, and receiving coils, timber, iron, &c.; the length of the lead (width 18 ft.) to the large wheels is two miles, and the length of the upper and lower leads is 6½ miles, making together 8½ miles (extent of the mines being three miles east and west on the course of the lead, and two miles north and south; and, therefore, you will see that in giving you these particulars we describe what is not an ordinary mine, but it is a mine of mines. It is an extraordinary undertaking, and I can say to those present, and to absent shareholders, that if you apply for an order to see these surface arrangements I shall be very happy to give you one, to go over the works and see it for yourselves. At page 28 the following further particulars have also been compiled for the information of the shareholders. The commencement of these mines was in 1840, when 639,353 tons of ore, for 3,300,127*l.* The mines' cost to March 18, 1880, has been 1,615,616*l.*; dues on ores has been 254,950*l.*; the other payments, for steam-engines, water-wheels, railway, reduction works cost, &c., upwards of

460,000*l.*; the capital paid up, 1*l.* per share on 10,240 shares, 10,240*l.*; dividends (151) paid to April 30, 1880, 1,199,616*l.*; or, in other words, 117*l.* 3*s.* per share on each 1*l.* share. The shafts sunk from commencement to March 20, 1880, 2525 fms.; the winzes and rises, &c., 6002 fms.; the levels and cross-cuts, &c., driven, 27,576 fms.; or, as I have before stated, equal to about 41 miles. I do not think there is anything more that I can call your attention to except the agent's report, from which you will see that, in addition to all this, we have done other repairs and made some additions. We are continually making additions, and that is what we want to do, to make further additions in connection with four reduction works. Then, again, at Wheal Emma you will see what we are doing there in connection with the railway shaft, where we are hoping to get something very good. The manager says—

"The Railway shaft having reached the required depth for a 190 fm. level, on the completion of the necessary shaft and timber work a cross-cut will be put out north for intersection of the new south lode, and judging from its very fine and productive character, yielding 2, 3, 4, 5, 6, 7, and 8 tons of copper ore, and 4, 6, and 6 tons of mudiic per fathom for many fathoms in length in the level above, a good lode may fairly be expected to be met with at this important point of level."

We are doing a great deal of dead work there. A cross-cut from one lode to another had been attempted several times, but never fully carried out; but we have been driving for the last 12 or 18 months, and in the course of another three months we shall intersect the lode at Dawe's cross-cut at the 190 fm. level, "and in the 137 fm. level east, on the new lode, our progress at these points has considerably improved, and this desirable and effective power will be of great importance in the future development of the vast extent of mineral ground still remaining unexplored throughout the mines." And then with regard to Watson's he says—"At Watson's, having successfully started our pumping machinery, re-shoulder in the former part of the level, we hope soon to resume operations upon the lode in this portion of the company's property, and looking at the very promising character of the lode in the present shallow workings, the congenial channel of ground, and also considering the fact that good returns of ore have already been made from these shallow workings, we confidently hope that as the workings are extended in depth at the engine-shaft and to the east and west thereof, valuable and profitable discoveries of copper and mudiic ores will be met with." And he concludes—"The machinery is working most satisfactorily, and we hope to have this mine drained to the bottom and to be ready to commence operations on the lode in about three weeks from the present time."

Mr. WATSON then made his report, and said that he had a box of ore for you gentlemen to see, which to me and to him is exceedingly gratifying.

The CHAIRMAN, in reply to a question, said the amount paid for costs and for the reduction works since the closing of the accounts was about 3000*l.*

The CHAIRMAN said, the general opinion of the meeting having been expressed in favour of an 8*s.* dividend and 2*s.* bonus=10*s.* together, the declaration of the dividend rested with the directors, but they would be very happy to meet the wishes of the shareholders. (Applause.)

The Right Hon. Lord CLAUD HAMILTON seconded the motion for the adoption of the report and accounts, which was carried unanimously.

The CHAIRMAN, in reply to a question, said the directors' fees had hitherto been 400*l.*

Mr. H. WILSON, after expressing his regret that the meeting should have been called for the Derby-day, said he was probably as familiar with the history of Devon Great Consols as any man in that room, and he remembered the time—no far antecedent to the present—when it was thought to be at zero, and it was thought that nothing short of a miracle would put the company into the position which you now occupy. That such a state of things as now existed had been brought about was due to the unusual energy of Mr. Peter Watson, who had rendered the greatest possible service to the company. He thought it was quite time that those services were more adequately recompensed. (Hear, hear.)

Mr. S. YORK moved that the remuneration of the directors should be 500 guineas per annum, to be divided according to the attendances. The shareholders were greatly indebted to them for their devotion, and he had much pleasure in making this proposition, which he had no doubt would be carried unanimously.

Mr. DETTMER seconded the motion, which was carried. Mr. H. C. Stewart, as an auditor, having borne testimony to the indefatigable exertions of the Chairman in the interests of the company, moved that the Chairman should be paid 500 guineas per annum. (Hear, hear.)

The CHAIRMAN returned thanks on behalf of his colleagues and himself, and said that considerable attention was given to the affairs of the company by the directors.

On the motion of Mr. H. WILSON, seconded by Mr. JAGGERS, the auditors, Messrs. G. T. Rait and H. C. Stewart, were re-elected; and, on the motion of Mr. LOCK, seconded by Mr. BENTLEY, the usual sum of 30 guineas was voted for the promotion of the education of the children of the miners employed at Devon Great Consols.

The CHAIRMAN said that in consequence of the death of the late Chairman of the company they had to appoint two new trustees. The drafts of the new leases had been prepared, and were now at the Bedford office for approval, and when returned they would be ready for signature.

Mr. STEWART thought he had the meeting entirely with him in proposing that the services rendered to the company by the indefatigable Chairman be more adequately remunerated. (Hear, hear.) They had all recognised the worth of the Chairman. From daily and constant intimacy he had found in that gentleman (Mr. Peter Watson) the happy union of wisdom and work—(hear, hear)—and he now ventured to move that the salary of the managing director should be doubled from henceforth. (Hear, hear.)

Mr. S. YORK had the greatest pleasure in seconding the proposition, and said that for the last three years Mr. Watson's devotion to the affairs of the company had at times considerably affected his health, for he had worked not only by day but by night to bring the company into the flourishing position it now occupied. (Applause.) He had shown the greatest ability and tact in every particular. (Hear, hear.)

The Right Hon. Lord CLAUD HAMILTON as a director, and as one who had ample opportunities of observing the value of Mr. Peter Watson's services, could not but bear testimony to the indefatigable attention which that gentleman had given to the company. (Hear, hear.) They were all satisfied with the pecuniary prospects of the company, and they knew that the dividend which had been discussed would not be the last for a long time, but they were not all aware of the good sense, tact, and kindness which Mr. Watson had displayed on all occasions. (Cheers.) There had been a great want of harmony between the workmen and their employers, and they had had strikes and threatened annoyances of various kinds, but he was happy to say that, owing to the admirable judgment and tact shown by Mr. Watson, these difficulties had wholly disappeared—(hear, hear)—and there was now contentment and harmony, the men having found that those who were poisoning their minds against their employers were not seeking for their good, but that Mr. Peter Watson was their real friend. (Applause.)

The CHAIRMAN having remarked that the proposition could only be put as a suggestion to the board, it was put and carried by acclamation.

The CHAIRMAN, in acknowledging the compliment, expressed the satisfaction with which he had listened to the observations made, and said that the shareholders could scarcely really be aware of the anxiety and labour which the management of the company had involved. But for all that he was quite ready to work for nothing or to retire if, and whenever, the shareholders wished him to do so. ("No, no," and applause.) Whether they voted him 500*l.* or 5000*l.*, or nothing, he could not work harder than he had done for the company. (Hear, hear.)

Mr. BAWDEN then exhibited some fine specimens of ore just raised from the 52, on Watson's lode, and by the aid of the plan pointed out the various works in progress. Incidentally he referred to the excellent prospects of the Devon United Company, and said that he had taken 500 shares, and the Chairman (Mr. Peter Watson) about 1000 in it, and that every share in the Devon Great United Company was really worth its money, and might be justly termed the silver mine of Devon Great Consols. (Hear, hear.)

On the motion of Mr. STEWART, a vote of thanks was passed to Mr. Bawden, Capt. Richards, and the other officers at the mines; and on the motion of Mr.

STEWART, seconded by Mr. ADAMS, a similar compliment was passed to the Chairman and directors.

The CHAIRMAN returned thanks, and said his confidence in the new undertaking (Devon Great United) was such that he was quite prepared to take up any shares which the Devon Consols shareholders might not wish to accept. The meeting then closed.

### DENBIGHSHIRE CONSOLIDATED MINING COMPANY.

A special meeting of shareholders was held at the offices of the company, Great St. Helen's, on Monday.

Mr. FRANCIS RUDALL in the chair.

The notice convening the meeting was as follows:—

"Notice is hereby given, that an extraordinary general meeting of the shareholders of the above company will be held at No. 30, Great St. Helen's, in the City of London, on Monday, the 24th day of May next, at half-past two o'clock in the afternoon, for the purpose of authorising the directors to sell and assign to any person or company willing to undertake the purchase the mining and other rights vested in this company over so much of the land held by it as is and shall be specified on a plan marked 'A,' the terms of sale and assignment, and the payment in cash of a purchase money of not less than 5000*l.*, and compliance with such stipulations and conditions as the directors shall deem reasonable."

The CHAIRMAN: A document has been circulated amongst the shareholders, in which is explained to them the nature of the proposal the directors have to make, so as to prosecute operations with the desired vigour, and to bring the concern into a thoroughly paying condition. Mr. Bartlett, our energetic secretary, has brought this question before us, and we think it will be by far our best plan to sell the portion of the mine referred to, the proceeds of which will enable us to purchase and to apply boring machinery to the rest. The part of the mine we are now working has been, with the exception of the north cross-cut, paying its way for the last few months, and with boring machinery splendid progress can be made in our north cross-cut. I am interested in the Halkyn Deep Level Mining Company, and there, under the terms of the agreement, the driving has been proceeding at the rate of 70 to 100 yards per month altogether for a mile and a half through the tunnel, and is still going on very rapidly. It is not probable that we should bring to bear the same kind of machinery upon our large and extensive sett to the north. Mr. Bartlett, who has been to the mines recently, will speak upon that point. He (the Chairman) concluding by recommending the scheme to the shareholders as the best that could be adopted, and by moving a resolution in accordance with the terms of the notice.

Mr. E. J. BARTLETT (secretary): Gentlemen, since we met you here on the occasion of the annual general meeting the progress at the mine has, on the whole, I think, been satisfactory. Stopping operations have been continued at the 66 west, and we have obtained from there regular monthly parcels of ore which have been sold at fair prices. The result has been that, taking the cost of stopping and the average working charges all the way through, if we had confined ourselves to the working of the 66, the mine would have yielded a profit. But possessing as we do a very large sett, it is never advisable to confine operations where you have a fixed surface expenditure that must go on, to one point, and so whilst continuing to extract the lead from the 66 level stope, we have been proceeding on another level at the same depth to come at the back of these stopes, and with the further object of intersecting the second lode that we know exists at this depth. This level has been extended some 60 or 70 yards, but of course it has been unproductive—indeed, it was not expected to be otherwise. We calculate that here we may have to drive some 20 yards further before we reach the productive ground, and then the directors expect—relying upon what has been told them by their manager—to double the present force of men engaged in raising lead. This operation is happily not in hard ground. The next point which we have been urging on, and which at the last meeting was costing us money, was the driving upon the main lode at the 112. At the time of the meeting we were just producing sufficient to pay about one-third of the cost of this development work, but now I am very glad to report that within the last month we are enabled from the produce that has been obtained to bring that also into a profitable position. (Hear, hear.) This leaves us with but one point that is taxing our capital account—the driving of the north cross-cut. Many of the shareholders have said why not confine yourselves to the productive parts, and with the money so obtained put by something for us? That remark might have been made with equal appropriateness about driving the 112 east, which has cost us a considerable sum for many months past. If instead of laying out money in the development of this mine we had decided to confine our operations to simply stripping down the lode in the 66, we should not have reached the present position. At the present moment—a good course of ore in the 112 east, and a profit instead of demands upon our capital account. The only other point beyond the setting of tribute pitches that is now and has been receiving attention from the board so far as the general prosecution of the mine is concerned is the driving of the north cross-cut from the 112 near the engine-shaft. It was first thought we should carry on this cross-cut for a distance of 60 yards. For the first 20 yards we had comparatively easy ground, or rather ground that cost to drive 5*l.* or 6*l.* per yard, but during the last 10 yards the ground has been much harder. It was never expected that this north cross-cut would yield any produce until we struck the first lode, which would be the continuation of the 112 east main lode, from which we are now making returns. When we strike that lode we shall be able to treble our force of men driving to meet the others that are at present in the 112 east, so that you would be able instead of six men driving one level and break down the ore, to have three times that number. From time to time it has been urged that we should have boring machinery, so that instead of making a progress of 4 or 5 yards a month, probably a drirage might be obtained of from 30 to 40 or 50 yards. The directors have tried to induce people who are possessors of these machines to come forward and find their own plant and steam—the company to pay them a given price per yard. There was only one party likely to do this, and they required a heavy contract to be set at a long price per yard. It would have been unwise for us to have sanctioned such a contract, for perhaps after driving 20 or 30 yards we should have struck the lode, whilst they might upon going into easy ground have accomplished the remainder of the distance in a month. In return for this we might have had to pay them a price that would have bought the entire machinery with all its appurtenances. So it has been left from time to time, and though it has been mentioned at various board meetings, yet the directors have not seen their way clear to carry out such a project. Supposing this division is consented to, there will be a sale of their property for 5000*l.*, and then to take an interest in it, but the offer of the shares will include the mining rights over the adjacent land. (Hear, hear.) That is to say, if this company to the south has the land for 5000*l.*, any person taking shares in this venture would participate in the results of mining from the adjacent south boundary, so that that will do away with the idea of your buying back what was your own property, and what is so until this resolution is passed. The question, and the natural question, for you to ask is—Will sufficient ground be left to the Denbighshire Consolidated shareholders to give them a fair chance of getting back the capital that has been spent upon their sett (of course, with interest), and also to make it as large a mine as under the circumstances may be justifiable, putting aside all the operations in the 66, and our discovery in the 112 east? In replying to that I would impress upon you that the north cross-cut should realise by far the greatest point yet seen in the Denbighshire Mine, and I am not alone in that opinion, for we know that there are three or four lodes traversing the sett from west to east, which have been proved in the adjacent mines to contain very large bodies of ore. This cross-cut alone might easily afford occupation for a couple of miners. Hence if you do sell the portion of the mine referred to upon the plan, marked "A," there is no need to fear but that sufficient land will be left to give ample scope for your working, and an ample return upon your capital. We have not called upon the shareholders to come forward with a single penny, and we have not pressed the shares we have in reserve. Not only with the proceeds of the portion of the sett we wish to sell shall we have enough to purchase the boring machinery, but there will remain sufficient capital to develop all the northern portion of your sett, and still retain a reserve in hand of something like 2000*l.* (Hear, hear.) From this you will readily see that the sale of a part of your property does not interfere with the legitimate prospects of your undertaking, but rather that it enhances them. It is simply selling a portion of your sett that we have no immediate prospect of being able to work, and with the proceeds obtaining money to drive the north cross-cut, and thus lay open to the best and earliest advantage the richest part of your property. (Hear, hear.)

Mr. GAMBLE (director) confirmed what Mr. Bartlett had said, and added that the north cross-cut embraced the largest and richest portion of the mine.

Mr. BARTLETT said that in March the 66 gave a profit of 40 per cent. They were sending regular parcels of ore to market now, and would sell one next Friday (yesterday). The mine had cost him personally over 2000*l.* in hard cash in the last three years.

Mr. GAMBLE: I hope the shareholders will not hesitate to adopt the suggestions of the board. If you stop the north cross-cut you will miss the immense body of ore that I feel sure will shortly be laid open.—Mr. BARTLETT: We are advised by the best engineers to continue the north cross-cut by boring machinery.

The CHAIRMAN: Boring machinery has been very successfully applied at the Miners Mine.—Mr. BARTLETT: Only what I mentioned in my opening speech.

Mr. BLAND: I should simply be disposed to trust your good judgment as I never happen to have seen the mine. I believe our affairs are economically managed.

Mr. BARTLETT: You may see so, for I have now been in the mine, and I am a shareholder, and for clerks. But for the unbounded faith I have in the mine, surely I would not have made these sacrifices. (Hear, hear.)

Mr. GAMBLE seconded the motion, which was then carried unanimously.

The CHAIRMAN said he deeply regretted having to announce the death of Mr.



Ommaney, one of the original promoters of the company, and a gentleman who took the liveliest interest in its welfare. It would be desirable to fill up the vacancy thus caused, and the board would give their best consideration to the matter.—The proceedings then closed.

The confirmatory meeting will be held at the offices on Tuesday, June 3, at half-past two o'clock in the afternoon.

#### NORTH D'ERESBY MOUNTAIN LEAD MINING COMPANY.

The annual general meeting of shareholders was held on the mine, at Trefriw, near Llanrwst, on Monday last, May 24; Mr. J. W. WILLIAMSON in the chair. The following report was presented:—

No. 1 Adit: A cross-cut has been driven into the eastern side with a view to prove the whole width of the lode gone off in that direction; we have driven about 8 ft., all in a large, masterly lode, well defined with lead and blende, and very kindly spar. We have now proved the lode to be full 12 ft. wide at this point, which speaks well for itself. The rise above this level has improved for lead since my report of last week; when completed to surface we shall be in a good position to sink the shaft under this level in a good course of lead ore.—No. 2 Adit: This level is being driven at a fair speed, about 4 fms. per month; the ground is more settled than it has been hitherto. I expect to find a good course of lead ore here again soon. The winze we are sinking behind this end looks very encouraging, well charged with good rocks of lead and blende. I feel satisfied we are nearing a good run of ore, which the shareholders will have an opportunity of seeing for themselves. Looking at the various points with such a large lode, and the great advantage we have of driving level under level into the mountain, I cannot but feel fully satisfied there is a good future before us. I have managed to get the office and smith's shop near completion, and shall soon be done with building cost, when we shall put our whole attention to prosecuting the mine.—R. H. VIVIAN.

The directors' report and statement of accounts were adopted, and a vote of thanks was passed to the Chairman. Previous to the meeting several shareholders inspected the mine, and expressed themselves as being highly satisfied with the prospects.

#### RICHMOND CONSOLIDATED MINING COMPANY

The ordinary general meeting of shareholders was held at the Cannon-street Hotel, on Tuesday. In the absence through indisposition of Mr. George Hopkins, C.E., the Chairman of the company, the chair was occupied by Mr. BENJAMIN BROUGHTON, the deputy-chairman.

Mr. HUBERT AKERS (the secretary) read the notice convening the meeting.

The minutes of the previous meeting were read and confirmed. The report and accounts were taken and read.

The CHAIRMAN said: Gentlemen, it is only right and due to you I should say that our Chairman (Mr. Hopkins) is prevented being present to-day by indisposition. He has been for the last two or three weeks in a very delicate state of health, and he is altogether unfitted to leave the house, otherwise he would have been with us to-day. I am sure every gentleman present will share with him the regret which he feels at his absence, as well as the regret which everyone of his colleagues feels. (Hear, hear.) Well, gentlemen, having expressed my regret at the absence of our Chairman, I must ask your indulgence in the few remarks which I may think it desirable to make, seeing that I am not well posted up in all the details of the company's position, as I am myself only just recovered from a very serious illness, and on that account I must ask you to grant me your indulgence. (Hear, hear.) When we had the pleasure of meeting you in December last we stated the company was in a very prosperous and flourishing condition, and we also expressed the opinion that we had a very prosperous future before us. Now, I think that opinion and that prediction are amply borne out by the report which we present to you to-day. (Hear, hear.) You will see by the report that the mining profit for the year is £143,063, and that the net profit is £134,511, being as nearly as possible 50 per cent. upon the total capital of the company. (Cheers.) For this profit made during the year it is only due to Mr. Robert, Mr. Rickard, and the other heads of departments to say that it is in a great measure owing to them, seeing that the grade of the ore during the past year has been something like 10 per cent. lower than in the previous year, and consequently has required greater care and judgment in the handling and the smelting. (Hear, hear.) This large amount of profit is also due in some measure to the refinery, for by refining the crude bullion on the spot the company has been enabled at once to market the precious metals, and, if necessary, to retain the lead for a rise in price in the market. A large amount of the profit is due to our having stacked the lead when at a low price, and taken advantage of the market when the advance took place. We propose, for your approval, that out of this sum of £134,511, and the balance of £19,519, brought forward from last year's account, after deducting the net amount of the three dividends of 7s. 6d. each which have been paid, amounting together to £60,750, and £424, for legal expenses in connection with the defence of the mine, leaving a balance to credit of £91,856, to be appropriated—I say we propose—to carry £4,416, to the reserve for contingencies and working capital, bringing up that account to £50,000. You will see, gentlemen, in the accounts that there is at the credit of the reserve account £583, 15s. 2d., so that the amount of £4,416, 13s. 10d. will make up just £50,000. We propose to pay an additional dividend of 10s. per share, carrying forward a balance of the sum of £20,440, 4s. 8d. to next account. In proposing to carry this amount to reserve fund for contingencies and working capital it should be borne in mind that the company has always to keep in hand a stock of fuel, &c., and that it takes time to realise the product, and, therefore, it is necessary at times to have advances from the agent at heavy rates of interest, the interest being 1 per cent. per month. At the date of the accounts being made up you will observe that on £208,928, of bullion in the hands of the agent he had advanced to us £3,180, so that the balance at credit of revenue consisted mainly of stores and bullion unrealised, while on the question of working capital I may say that the board hope ultimately to have something like £100,000 for that purpose, but it is not intended that the amount shall be taken from the profits of any one particular year, but that it should be spread over a series of years, and I think that a course of that sort will meet your approval. (Cheers.) The next paragraph in the report gives an account of the operations for the year—that is, the smelting and so on, with the amount realised. Now, in connection with the mining expenses, I may call your attention to the fact that they have been reduced 86c. per ton as compared with those of the previous year, but this saving has not been effected by neglecting exploration in the mine, as it will be seen that £18,177 had been expended in labour alone in dead work, and over 2½ miles of drifts and winzes have been run. (Hear, hear.) With respect to the smelting expenses, I will call your attention to the fact that they have been reduced 11s. 13c. per ton as compared with the previous year. This is chiefly from improvements effected in the furnaces. The new furnaces have enabled us to smelt 30, 35, and even 90 tons per day, and they only require the same crew of men to work them as the old furnaces did, consequently a great saving of labour has been effected. Towards the close of the report you will see that we state that a large amount of exploratory work has been done during the year, and we give our account of the condition of the developments. We say:—

No. 13 chamber has been developed on the 600 level, No. 14 on the 500, and No. 15 on the 400 level. This last chamber now shows a large body of ore ever discovered in the mine. Connections (all the way in ore) have been made from this chamber to the northwards with No. 13 chamber (a distance of 350 ft.), and with No. 14, also to the northwards (a distance of 500 ft.), and to the eastwards with No. 11 (a distance of 180 ft.). Ore has recently been struck on the 200 main drift, and the indications are that it will open out to a large ore body, and connect with the other chambers; good ore has also been struck in a cross-cut from the 200 main drift. A rise has been started in the back of the drift, which connects chambers 11 and 15, and is up a total distance of 118 ft. in high grade ore; the course of this rise corresponds with the ore found in the 200 level. All the chambers are looking well, and yielding large quantities. The grade of the ore is improving, the average yield in March having been 856·37 and in April 867·50 per ton.

Following up the question of the condition of the mine I have now the pleasure to read to you an extract from a letter which was received from Mr. Robert yesterday. He says:—

"Our mine continues to improve, and the ore is now continuous from the 200 ft. level down to the 600 ft. without a break. It would be impossible to make anything like a close estimate of the ore in sight, but it would be safe to say that it is more than twice as much as ever we had at any time before in the history of the mine. It is of excellent quality, too, as the returns show, and horses and waste in the chambers are smaller than in most of the chambers formerly opened. The last body discovered, that on the 200 ft. level, is improving upwards, and looks as if it might rise to the tip-top croppings, through some 350 feet of ground. We have also a very promising streak of ore now making down from the 13th chamber below the 600; it has been followed down about 40 ft. already, and I have much confidence that we shall soon be able to announce a good strike somewhere in that direction."

So you see, gentlemen, that the indications in every part of the mine are of the most promising nature, and I think we were perfectly justified in stating when we last had the pleasure of meeting you that the mine was more promising than at any previous period of its history. (Cheers.) It may interest you, gentlemen, to know the result of the run of last week, which we have just received; it is £75,000, from 110 tons of ore, which shows the result of 688·18 per ton. I think, gentlemen, we have put the facts and condition of the mine before you so fully in the report that it will be superfluous to enter more into detail, or occupy your time unnecessarily, but if there are any questions which any gentleman may wish to ask we shall have great pleasure in answering them if it is in our power to do so. With these remarks I have much pleasure in moving the adoption of the report and accounts. (Cheers.)

Mr. JOHN ELLIOTT: I have great pleasure in seconding that. From the experience I gained as your chairman during a portion of the existence of this company I am in a position to appreciate the facts contained in the report as well as any one here. I have looked over the report with very great satisfaction, and I think the progress we have made is very remarkable, and justified all the anticipations which we originally formed as to what ultimately would be found in this splendid property. I am especially glad to see that you have commenced a reserve, which we so long struggled to obtain, and that you have arrived at the conclusion which I always endeavoured to inculcate upon you was a natural necessity of your future policy that the reserve should be at least £100,000. You have got it now half way to that amount, and you have got it also in connection with great developments, which at first might appear to render a reserve somewhat unnecessary; but it can never be unnecessary, for it will enable you to equalise dividends, even if it is not required to save you calling upon outside people for aid, and paying very heavily for this assistance. Therefore, it is a very great satisfaction for me to find that you have got your reserve in hand. The whole

accounts are extremely satisfactory: in fact, I have never gone over one of your balance-sheets which presents so satisfactory a position as the present one. I may recall with feelings of pride that all this result has taken place in connection with our obtaining the Tip-Top Mine, which we had such great difficulty in doing at the time, and which we got through the exertions of the Chairman and myself without cost to this company. All this is really the fulfilment of the great anticipations which I always held regarding this mine. I remember that one journal published the statements made by me side by side with the statements made by the Chairman of another mining company, and it was remarked that in the promises held out in that other statement were not fulfilled, and why should they be fulfilled in our case. But, gentlemen, we have succeeded, but the journal to which I have alluded has not been candid enough to give me the benefit. 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Probert at his (Mr. Elliott's) suggestion went out, saw the excellence of the property, and had been there off and on ever since, and had rendered the company services which it was impossible to exaggerate. All who had been connected with foreign mining matters must be aware that one of the great difficulties was to get a capable man, thoroughly honest at heart, to supervise and manage the business abroad. (Hear, hear.) Therefore this company were exceptionally fortunate in having secured the services of such a gentleman as Mr. Probert. (Cheers.) Referring to the remark of Mr. Chynoweth regarding the royalty on the refining process he said he could tell that gentleman of several special patent processes which were employed at different places for that purpose; and, therefore, there was nothing exceptional in the payment by this company.

The resolution was then put and carried, with cheers.

The auditors (Mr. George Broom and Mr. James Fraser) were then re-appointed. The CHAIRMAN said the dividend of 10s. per share would be paid on June 3 to all shareholders on the books at the time of the closing of them—May 21.

Mr. CHYNOWETH proposed a cordial vote of thanks to the Chairman for the able manner and the cordiality with which he had conducted the business of the day, and to the directors for their valuable services in conducting the affairs of the company.

Mr. HEIRON seconded the resolution, which was put and carried.

The CHAIRMAN acknowledged the compliment, and the meeting broke up.

#### BERLANGA SILVER-LEAD MINING COMPANY.

The report of the directors, to be presented at the meeting on Wednesday, is of a satisfactory and encouraging character. A dividend of 7s. 6d. per share is recommended, and 3487. 5s. 5d. will remain to carry forward:—

The verification of the company's books and accounts in Spain was, as heretofore, kindly undertaken by Mr. Thomas Beck, banker, Seville. The consulting engineer, Mr. Samuel George, M.E., thoroughly inspected the company's property in April last, and extracts from his very favourable report are embodied in that of the directors. In conformity with the directors' report of last year, the accounts up to June 30 have been treated as the concluding period of carrying everything to development account, and it is very gratifying to them to submit the revenue account for the last six months of the past year, which exhibits a gross profit of 3937. 15s. 11d. After writing off out of profits 1714. 10s. 6d. on cost of mining property, there remains 2223. 5s. 5d. to the credit of revenue account. Out of this sum the directors recommend a dividend of 7s. 6d. per share, free of income tax, which will absorb 1875s., leaving 3487. 5s. 5d. to be carried to the new account. This favourable result is attributable not only to the high prices obtained for lead ore during the latter part of the year, but also to the increased output of the mine, the quantity raised and cleared in 1879 being 1655 tons, as against 914 tons in 1878, and 299 tons in 1877. Notwithstanding this increased output, the reserves of lead ore in the mine showed an augmentation of 413 tons on Dec. 31, 1879, being 2313 tons, as against 1900 tons at the same date in 1878. Mr. George, in his report above alluded to on the question of reserves of ore, says—"I have gone carefully into this matter during my late inspection, and I consider the estimate of your agents on the safe side, as even 2500 tons would not have been too high."

As to the mines, buildings, &c., Santa Catalina Mine has well maintained its former reputation, and San Jose or south lode has verified the good opinion already expressed of it. The lead ore shipped in 1879 was 1622 tons, which was of excellent and uniform quality. The table in the report shows the average to have been about 79 per cent. for lead and 9 ozs. of silver to the ton. The total output from Dec. 31 to June 30 is estimated at 900 tons.

With regard to the transport of lead ore, which has always been a source of trouble to us during the winter months, the roads being at times absolutely impassable, we are glad to state that the concession of the railway from Llerena (about nine miles from the mines) to Seville is now the property of the Madrid and Saragossa Railway Company, which has guaranteed to complete the line by Dec. 31, 1881. This, when completed, will reduce the transport cost, which is about 2s. per ton, less than one-half. The construction of the railway is being carried on with vigour, and we shall have the advantage and benefit of using the line as each section is opened for traffic.

**WHEAL KITTY (St. Agnes).—**At the meeting on the mine, on Tuesday (Capt. W. Teague in the chair), the accounts for the four months showed a profit of 859. 17s. 11d., and a total credit balance of 1,143. 9s. A dividend of 1,074. (5s. per share) was declared. Capt. Teague reported on the various points of operation. In the west shaft sinking under the 10 fm. level the lode has much improved in appearance, producing good stores of tin. The stopes and pitches are much the same as for some time past.

**BLUR HILLS.—**At the meeting on the mine, on Tuesday (Mr. Claude Daubuz in the chair), the accounts showed a profit on the 16 weeks' working of 812. 4s. 3d., which clears off the adverse balance at previous meeting and leaves a credit balance of 422. 13s. 3d. The agents reported that on the whole the mine has not looked so promising at any period of its present working as now. It was resolved to dispense with the London office of reference; that the thanks of the meeting be given to the lords for reducing the dues in times of depression; and the committee were authorised to dispose of the 1900 forfeited and relinquished shares at such times and in such manner as they considered best.

**PENHALLS.—**At the meeting on the mine, on Tuesday (Mr. Richard Davey in the chair), the accounts showed a profit on the 16 weeks' working of 592. 6s. 3d., clearing off previous adverse balance and leaving a credit balance of 376. 10s. 10d. Capt. Bennetts and Harris reported that in the tribute department the aggregate value of the pitches is very fluctuating, and at present they are not quite so productive as they were four months since. As the water is again being forked out of the old Pink Mine, we hope soon to lay open some tribute ground in the vicinity of the Glynn as soon as a communication is effected between the two 50 fathoms levels east of engine shaft and west from Glynn shaft. Resolutions as at Blue Hills meeting were passed and the meeting separated.

[For remainder of Meetings, see to-day's Journal.]

#### THE VAN MINES—MONTHLY REPORT

May 26.—As under, please find my monthly report and setting list. The 120 west is set to six men, at 100s. per fathom. I am happy to inform you that the lode in this end is rapidly improving, and is now producing good patches of lead ore, and likely for further improvement. The 105 is now 154 fms. west of Seabam's shaft, and is set to four men, at 120s. per fathom; where the lode has been tried on the north side of the level we find it to be worth from 1½ to 2 tons per cubic fathom; and as we get under the ore ground which we appear to be skimming the top of, in the 90, ahead of us, we may reasonably expect an improvement. The gas issues strongly from this end at times. The intermediate level, in back of the 105 fm. level west, is set to four men, at 160s. per fathom; the lode here is worth about 10 cwt. of lead per cubic fathom. The 90, west of shaft, is set to six men, at 70s. per fathom; we have crossed 3 fms. north at this end, and find an improvement upon the level above. The first 3 ft. crossed was through a lode worth 15 cwt. of lead ore per cubic fathom, and the lode in the present end still showing spots of lead. The 80, in back of the 90, is set to four men, at 130s. per fathom, and worth 22 cwt. of lead ore per cubic fathom, set as under.—The 140 west to eight men, at 45s. per fm. The 80 west to eight men, at 50s. per fathom. The 60 west to eight men, at 75s. per fathom. The 40 west to six men, at 70s. per fm. The 20 west to eight men, at 40s. per fm. The 20 east to four men, at 40s. per fathom. The two stopes in back of the 105 west are set to eight men in each, at 50s. per cubic fathom; the lode here is 18 ft. wide, worth 2 tons 5 cwt. per cubic fathom for lead ore. The 75 permanent level is set to four men, at 75s. per fathom. The stopes in back of the 75 are on the average 24 ft. wide, worth 25 cwt. of lead ore per fathom. 80s. under.—The 100 west to eight men, at 45s. The 80 west to eight men, at 47s. 6d. The 50 west to eight men, at 47s. 6d. The 30 west to eight men, at 45s. The 20 east to six men, at 65s. The 60 is set to four men, to drive under Edward's shaft, at 55s. per fathom. We have about 25 fms. to drive to get under the shaft. The stope in back of the 60 is on the average 20 ft. wide, worth 25 cwt. of lead ore per cubic fathom; set to eight men, at 75s. per fm. The stope in back of the 30 east is set to six men, at 65s. per fathom; the lode is 12 ft. wide, worth 18 cwt. of lead ore per cubic fathom. Edward's shaft is completed and timbered to the 45.—North Lode: The cross-cut for the north lode has been driven 23 fms., now set to six men, at 80s. per fathom. I am expecting to intersect the lode in the course of this month. This month we shall resume the trial cross-cut in the 120 west with a couple of men.—Surface: At surface everything is going on regularly. We are well off for water so far. Our monthly sale takes place to-morrow, upon 200 tons of lead ore and 150 tons of blende. The machinery is all in good working order.—W. H. WILLIAMS.

#### WEST DEVON CONSOLS—SPECIAL REPORT.

May 20.—Agreeably with your request I inspected the above-named mine yesterday, and the following is my report. This piece of mineral ground adjoins the Devon Consols to the west, and Gunnislake (Clitters) to the north, being close to the two richest mines in the district, and is held from the lords at 1-24th dues for 21 years, which is very liberal. I found the workings mostly confined in opening up a new lode discovered about 200 fms. south of the other lodes worked on. In the trial shaft sinking, which is down about 4 fms., the lode is over 4 ft. wide, and appears to be opening wider every foot sunk, the composition being a beautiful gossan, and in this is found rich cubes of yellow copper ore, plainly showing you are not far off from a rich course of ore. About 30 fms. to the west of this shaft a trial pit or two is being sunk close to a fine cross-course which can be seen in the same field a little to the north of these pits; the lode here presents a fine appearance, yielding a mass of gossan intermixed with splendid cubes of rich yellow ore. No doubt the ore found in this lode will be of high percentage, being close to the granite, and not very many fathoms to the north of Gunnislake (Clitters) Mine. Your manager told me it is intended to drive an adit from the River Tamar on the course of the lode; this will give you 40 fms. of backs. I would recommend this adit to be started at once, and a small engine or horse-whim erected on trial shaft. This lode being one of Devon Consols south lodes, and being imbedded in a beautiful channel of white killas, and producing such a mass of splendid gossan with rich ore intermixed, any reasonable outlay is warranted in being expended on it. In this test there are six known lodes to be running through it, and a great deal of necessary work done on them. Engine-shaft sunk 80 fms., and

large quantities of ore raised on what is called engine-shaft lode, the same being about 8 ft. wide, producing a great deal of ore stuff. I was very much surprised in looking over the surface to see so little deads, or what is more commonly called burrows, there is very little indeed for a mine worked 80 fms. deep, plainly showing that most of that lode has been sent to market. Reports from former managers can give you best information on this. There are also the necessary buildings erected for working a large mine—office, smith and carpenter's shops, material-house, and a house that by putting a little repairs to it would do very well for agent to live in. I consider the company have the advantage of many thousands of pounds worth of work done for them. I should not be surprised to hear in a very short time you have discovered such a course of ore on the south lode near the surface as to surprise many in the neighbourhood.—JOHN DAW.

#### Registration of New Companies.

The following joint-stock companies have been duly registered:—

**ARMY AND NAVY AUXILIARY CO-OPERATIVE SUPPLY (Limited).—**Capital 100,000l., in shares of 1l. To carry on a co-operative business connected with the Army and Navy Co-operative Association (Limited). The subscribers are—Hon. R. W. Grosvenor, 62, Queen's Gate, 500; Admiral R. Collinson, Ealing, 300; Gen. R. Rumley, 16, Eaton Terrace, 100; Gen. R. B. McCrae, Ealing, 100; Sir F. E. Chapman, Bina Gardens, 100; Capt. E. Lewis, Upper Norwood, 100; Admiral S. Nolloth, The Albany, 100; Major F. B. McCrae, Ewell, 100.

**THE WESTERN AGRICULTURAL CO-OPERATIVE ASSOCIATION (Limited).—**Capital 50,000l., in shares of 5l. To supply its shareholders, farmers, and landowners with all requisites of the farm. The subscribers are—R. T. Oliver, Bodmin, 20; W. P. Vesper, Plympton, 20; W. P. Pays, Plympton, 20; T. H. Pitts, Kingsbridge, 4; J. Pomeroy, Bodmin, 40; J. W. Dingle, Derby, 20; G. Martin, Wadebridge, 100.

**CROWN SERVICE TRADERS (Limited).—**Capital 50,000l., in shares of 10l. and 1l. To carry on a business of dealers in all manner of goods. The subscribers (who take one share each) are—J. G. Gillmore, Tottenham; H. Parkinson, 35, Pudding Lane; W. F. Hooper, Woking; J. Gordon, Clapton; R. L. Jones, 56, Tower Chambers; A. E. Jackson, 450, Old Kent Road; C. Smith, Leamington; W. R. Haylock, Great Swan Alley.

**DIGLOY TEA COMPANY (Limited).—**Capital 50,000l., in shares of 5l. To acquire lands in Upper Assam for the purpose of carrying on the business of a tea company. The subscribers (who take 1 share each) are: J. Warren, Waltham; W. S. Warren, Hounslow; F. J. Appleford, Woodbury Down; E. G. Reek, Southgate; J. Clapham, 1, Cushion-court; W. H. Ayers, 25, Mincing-lane; J. W. Aubrey, Islington.

**THE STANDARD STEAMSHIP COMPANY (Limited).—**Capital 20,000l., in shares of 50l. To purchase and employ steam and other vessels. The subscribers (who take 5 shares each) are: J. Bearey, Sunderland; S. Wrightson, Sunderland; T. Pinkney, Sunderland; W. R. M. Murty, Sunderland; H. Wrightson, Sunderland; W. Smith, North Shields; J. Wake, Sunderland; W. Pinkney, Sunderland.

**THE TRAWDEN MILL COMPANY (Limited).—**Capital 10,000l., in shares of 5l. To manufacture and deal in cotton. The subscribers are: John Holgate, Winewall, 20; J. Bannister, Trawden, 6; W. Hartley, Trawden, 4; S. Bannister, Trawden, 4; James Holgate, Trawden, 5; S. Burrows, Trawden, 4; G. Sowerby, Trawden, 5.

**THE VICTORIA SPINNING COMPANY OF DROYLSDEN (Limited).—**Capital 25,000l., in shares of 5l. To acquire the Victoria Mills estate, and to carry on the business of cotton spinning, &c. The subscribers (who take one share each) are—L. Lees, Manchester; T. Hazeldine, Droylsden; H. Lees, Fairfield; H. Whitaker, Kensal; C. Haslam, Fairfield; T. Holt, Rochdale; T. Gundry, Cheetham.

**STEAMSHIP ALGERIAN COMPANY (Limited).—**Capital 32,000l., in shares of 5000l. To carry on a shipowners' business. The subscribers (who take one share each) are—F. R. Leyland, Liverpool; J. T. Cross, Liverpool; F. W. Leyland, Liverpool; J. Bibby, jun., Liverpool; J. H. Wheatley, Mirfield; J. Bibby, sen., Liverpool; J. J. Bibby, Shrewsbury.

**THE STANDARD FELT COMPANY (Limited).—**Capital 10,000l., in shares of 10l. To manufacture and deal in felt and other hats, cotton wadding, &c. The subscribers are—W. T. Emmott, Manchester, 50; G. Mason, Manchester, 50; F. Fleming, Halifax, 50; T. H. Rush-ton, Bolton, 50; T. C. Banalough, Manchester, 25; R. A. Holme, Bolton, 50; E. Booth, Old Trafford, 1.

**MADELEY COAL AND IRON COMPANY (Limited).—**Capital 75,000l., in shares of 10l. To purchase or otherwise acquire the mines of coal, ironstone, fire-brick, clay, and other minerals, situate in Staffordshire, known as the Madeley and Leycester estate, and all the plant and appliances connected therewith, and any other mining or mineral properties. To smelt and manufacture iron, and make coke, bricks, and other articles of clay. To buy and sell coal, coke, iron, bricks, iron ore, stone, and other minerals and useful earths. The subscribers (who take one share each) are—R. Walker, Manchester, iron founder; J. Haworth, Walslow, cotton spinner; G. A. Muscroft, Bury, stock broker; G. Wrigby, Bury, paper manufacturer; J. Hutchinson, Bury, cotton spinner; R. Walker, Bury, machinist; M. Settle, Bolton, mining engineer.

**DEVONSHIRE SILVER-LEAD MINING COMPANY (Limited).—**Capital 20,000l., in shares of 1l. In accordance with the terms of an agreement to search for, win, and work lead ore, silver-lead, blende, calamine, and other minerals in a plot of ground, situate in the parish of Lydford, Devonshire, and any similar or other minerals and substances in Great Britain. The selling of ores, metals, and minerals raised or obtained by the company. The subscribers (who take one share each) are—T. W. Fullilove, 32, Elizabeth-street, clerk; C. W. Whitlam, Walsworth, shorthand writer; J. H. Charles, Islington, accountant; B. J. Wildbore, 9, St. Paul's-terrace, clerk; W. Luke, 26, Swinton-street, accountant; T. P. Partridge, Hammersmith, clerk; W. H. Randall, North Brixton, clerk. Number of directors not to be less than two or more than seven, the election of the first resting with the subscribers.

**THE LUMB SPINNING COMPANY (Limited).—**Capital 5000l., in shares of 5l. To carry on a cotton spinning business in Yorkshire. The subscribers are—T. Hayes, Manchester, 1; H. H. Cornforth, Ashton-under-Lyne, 199; W. Tatham, Eccles, 199; T. P. Cornforth, Ashton-under-Lyne, 1; T. H. Brown, Weast, 1; T. Utley, Cheetham, 1; E. McGrath, Manchester, 1.

**THE WEST FRONTINO AND BOLIVIA GOLD MINING COMPANY (Limited).—**Capital 100,000l., in shares of 1l. To purchase or otherwise acquire mines and mineral properties and lands in South America and elsewhere, and to purchase, erect, and lay down all machinery, plant, buildings, &c., as may be required for the purposes of the company. To carry on the business of raising, working, winning, and selling ores, metals, and other minerals, and that of mining in all branches. The subscribers (who take five shares each) are—J. Hosking, 9A, New Broad-street, engineer; T. Hall, Hammersmith, clerk; J. Wykes, Wanstead, broker; P. Griffon, Highgate, gentleman; H. Renter, 47, Heygate-street, stationer; S. Drummond, 121, Bishopsgate-street, insurance agent; G. Chambers, 7, Colville-road, gentleman. The first directors shall be the subscribers. Future qualification 200 shares.

**THE GLYN COLLIERY COMPANY (Limited).—**Capital 20,000l., in shares of 100l. To adopt and carry into effect an agreement made between J. Crockett of the one part and J. R. Williams of the other part. To acquire any veins, seams, beds, or deposits of coal, ironstone, blackband, and fireclay in any land in Glamorganshire or elsewhere, for the purpose of carrying on the operations of miners and dealers in coal, coke, ironstone, and any other substances. The subscribers are—T. Crawshaw, Cardiff, Esq., 25; J. M. Harris, Llantrissant, Esq., 10; T. H. Ayres, 1, Cumberland Gardens, Esq., 10; M. R. Williams, Pontypriid, bank manager, 5; W. Thomas, Aberdare, mining engineer, 5; T. M. Harris, Horwain, Esq., 10; J. R. Williams, Aberdare, surveyor, 1. The first directors shall be named by the subscribers, the qualification being fixed at 500l. in stock or otherwise.

**THE ANGLO-AMERICAN DRUG COMPANY (Limited).—**Capital 100,000l., in shares of 10l. To carry on the manufacture and sale of different toilet preparations. The subscribers (who take one share each) are—J. Wilson, 101, High Holborn; W. J. Clarke, Rowford-road; T. Platt, Victoria Park; H. C. Bartlett, 39, Duke-street; R. Hussey, 101, High Holborn; T. H. Francis, 101, High Holborn; H. C. Gallup, Upper Norwood.

**THE SOUTH AUSTRALIAN LAND MORTGAGE AND AGENCY COMPANY (Limited).—**Capital 1,000,000l., in shares of 10l. The subscribers

are—W. Richardson, 64, Belsize Park, 250; T. Graves, 2, St. Michael's House, 250; C. J. Hegan, 14, Cornhill, 250; W. B. McGavin, 8, Great Winchester-street, 250; H. J. Norman, 4, Halkin-street, 250; H. R. Sperling, 14, Cornhill, 1; G. A. Bartlett, Shepherd's Bush, 1.

#### SHORT NOTICES ON IRISH MINES.

BY WILLIAM THOMAS.

To the north, and parallel with the Browhead, the Mizen Head is a prominent object, facing the Atlantic Ocean, and in the cliffs there is a great lode of quartz, intermixed with yellow copper ore, about a mile east inland. This lode crops out again in the cliffs at the "white strand," and contains yellow copper ore, quartz, &c.; still further east it has been traced through the townland of Kilbarry, and on to the south of Goleen. The indications in Kilbarry in costean pits are favourable for the production of mineral. The distance from the Mizen Head to Goleen is about six miles, and the lodes are traceable, except where interrupted by the "white strand," the whole distance. A company was formed many years ago to work the Mizen Head great copper lode, but nothing of importance was done. Parallel with Kilbarry is another range of lodes, in the townland of Boulaslough, of quite a different character to the Mizen Head lodes, and contain grey copper ore, carbonate of copper, &c., and in many trial pits the indications are favourable for the production of minerals. These lodes run near and to the north of Goleen, and are well situated, there being good roads through the townland, and near a safe shipping port. Although the Mizen Head Mine was said to be discovered by the late Col. Hall over 60 years ago, the district, including Kilbarry, Boulaslough, and Goleen, is entirely unexplored ground, and well worthy the attention of capitalists. The owners of the property are Mr. J. H. Swanton, J.P., Doctor Notter, and Mr. J. Notter. Travelling eastward we come to the Mount Gabriel range, at the north side of which there is a belt of lodes containing rich grey copper ore and carbonate of copper. Col. Hall, it appears, first opened trial pits on these lodes, and recently a trial shaft was sunk on one of them, but as it was almost a flat lode the shaft, it was said, was sunk through it into the slate rock. This belt of lodes may be proved with a small outlay by an adit level driven south from the valley, and which no doubt would lead to profitable results. The distance to drive would be about 60 fms. to intersect the lodes in the side of the mountain, when operations could be carried out to a great extent without the aid of pumping or hauling machinery. Near the summit of the mountain range an east and west lode of barytes was discovered, from which several cargoes were raised and sold. I may remark, however, that east and west lodes of barytes are not so productive as north and south lodes cutting across the direction of the strata. The owner of the minerals of Mount Gabriel is Mr. J. H. Swanton, J.P. These lodes run through the townland of Cooragurteen and Gurteenroe east to the Ballydehob old copper mine, which is situate near the town of Ballydehob, and was first opened by Col. Hall, and worked by him, I am informed, at a profit. The ore in this mine is rich silver grey, carbonate of copper, &c., and water-power may be applied for pumping and hauling. The mine is close to an excellent road, and very near a safe shipping place at Ballydehob. Mr. Franklin, solicitor, Cork, acts for the property. It is about three miles from the Gap of Mount Gabriel to Ballydehob Mine, and this belt of lodes when developed will no doubt make a valuable run of mines.

#### MINING IN SOUTH AUSTRALIA.

[FROM OUR OWN CORRESPONDENT.]

Although mining has not quite recovered from its late and long depression, matters in connection with this important industry are wearing a more hopeful aspect. The Moonta and Wallaroo Mines have resumed active work, and the Hamley—one of the best after the Moonta, which it joins—has been at work all through the dull times, and has paid a dividend. The Kurilla and the New Cornwall Mines are going on very satisfactorily, work at the latter having been lately resumed in consequence of the improved state of the copper market. Prices, however, have not been quite so steady as we could have wished; but if we could feel assured they would not go below 77l. for the next 12 months work would be carried on with more energy.

One of the oldest mines in the colony has been reopened recently, and I send you an extract from the Advertiser, of April 7, describing a visit lately paid to it under the name of the Belara Mine. It was originally the Adelaide Mine, and was remarkable for having a rich vein of auriferous gossan running alongside the copper lode, between the ore and the wall of the lode. It is worthy of remark that throughout the hills in the neighbourhood of that mine gold has been found for the past 40 years, and it is believed by many practical men that a vigorous search for the precious metal would prove remunerative. Gold is found over an area of many square miles around the Belara Mine, and as far as six or eight miles beyond. I lately saw some good rough gold taken from ground several miles beyond, and which I was informed was likely to be worked by an English company. Something or other is continually turning up to show that our mineral discoveries have as yet by no means reached their limit. My firm conviction is that there is an ample field here for the profitable investment of capital if under honest and judicious management.

One of the most promising things now before the public is the prospectus of the new Alma Gold Mining Company, a notice and prospectus of which I enclose. Though in no way interested in the affair I can of my own personal knowledge and inspection fully confirm all that is stated in the prospectus. The reef is remarkably well defined and in splendid country, and is traceable for many miles. I am confident, when it is properly opened and worked, this reef at Wankaringa will rival many in Victoria. Unfortunately, in this colony we are not a gold mining community, but if we could induce a few moneyed and practical Victorian or Californian miners to come here and try our reefs there is no doubt they would inaugurate a new era in South Australian mining. Even the spurt in reference to our diamond deposit soon died out.—Adelaide, April 16.

#### MINING IN CALIFORNIA—SIERRA COUNTY.

The North Fork Mining Company, near Forest City, Sierra County, are reported to have struck the main channel, and are taking out very rich gravel. Though the company have been deprived of water most of the season they are now in full supply. Their dump is filled with rich gravel, and big returns may be looked for this spring. The first day's washing resulted in 85 ozs. of gold. The company have been drifting for three years to strike the rich lead known to run through the mine, and at last, after spending \$160,000, have found it, and will soon get their money back with big interest. The gravel now being taken out pays \$5 to the car load on the average.

This report is fully confirmed by another authority, who writes that in the history of gravel mining on this coast, or perhaps the development of the broad, rich, and extensive mineral belts in the most noted gold bearing countries on the globe, it would be very difficult to discover a gold mine that has in a few years yielded such princely dividends on an insignificant investment as the now famous Bald Mountain, of Forest City. On an outlay of \$25,000, cost of sinking a shaft, running a tunnel, and the purchase of a water right, since the claim was first opened in 1871, an income of over \$700,000 has been realized, with aggregate receipts at fully \$1,500,000. Since the advent of the water season last December the sum of \$40,000 has been divided among the stockholders. The December was the best monthly yield, amounting to \$28,200. One hundred and twenty men are now employed. All except a few, the bosses and those who work in wet and dangerous places, are paid \$3 a day, making the labour expenses alone up to nearly \$10,000 a month. As the channel is over 600 ft. wide, this ancient river bed promises to yield the same large dividends for an indefinite period.

In the tunnel of the Bald Mountain Extension Company, at Forest City, last month 100 ft. of tunnel was run in the brief period of 21 days, through cement or mountain lava. Holes are drilled in the face of the tunnel from 3½ to 4 ft. in depth, every blast throwing out about 2 ft. of rock. Ten pounds of giant powder are used for each day and night shift of 24 hours. No timbers are required, and on completion, should the lava formation continue, this air-line tunnel will never need repairing, and be a permanent "open sesame" to the inexhaustible treasure vaults of Bald Mountain. The dimensions are 6½ ft. high by 5½ ft. wide. Fifteen cartloads of cement are run out every 24 hours, which, considering the present length of the tunnel (over 1700 ft.), and also that only hand-power is employed, is a very creditable amount of work for four men in the short time allowed. The water in the air-shaft has a fall of 64 ft., thoroughly ventilating the tunnel. The supposition now is that possibly underneath the strata of lava there may be a rich gravel bed crossing through the South Fork to the Bald Mountain extension ground.

—The proposed Spring Valley Mine tunnel, near Oroville, will occupy 100 men for two years.



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1875 AND 1876. AND THE HIGHEST AWARD FROM THE  
MINING INSTITUTE OF CORNWALL, 1878.

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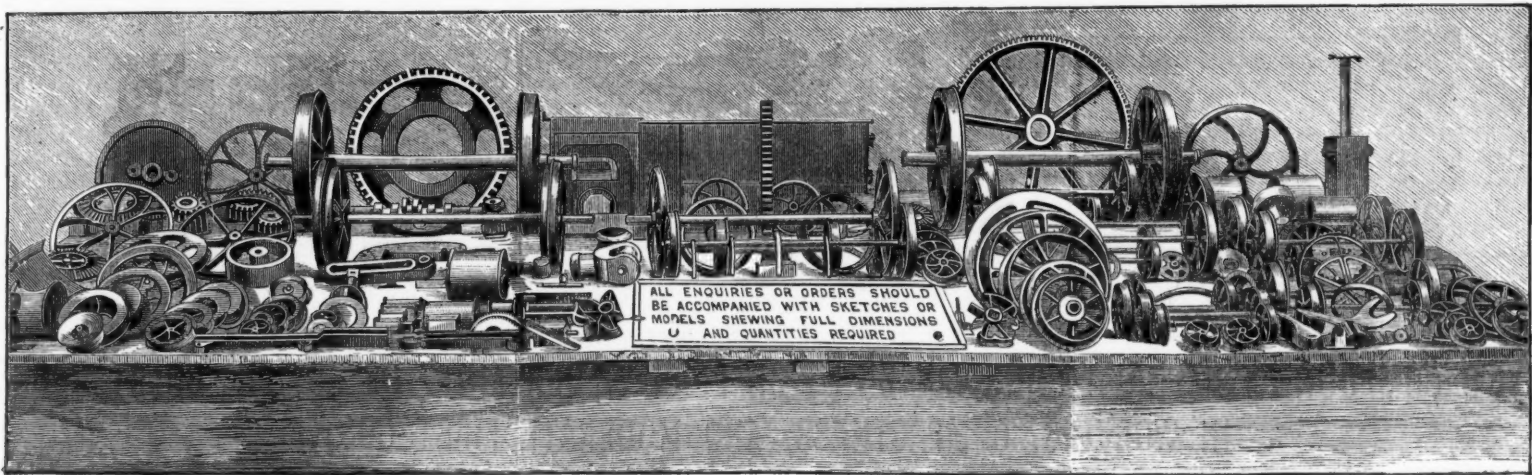
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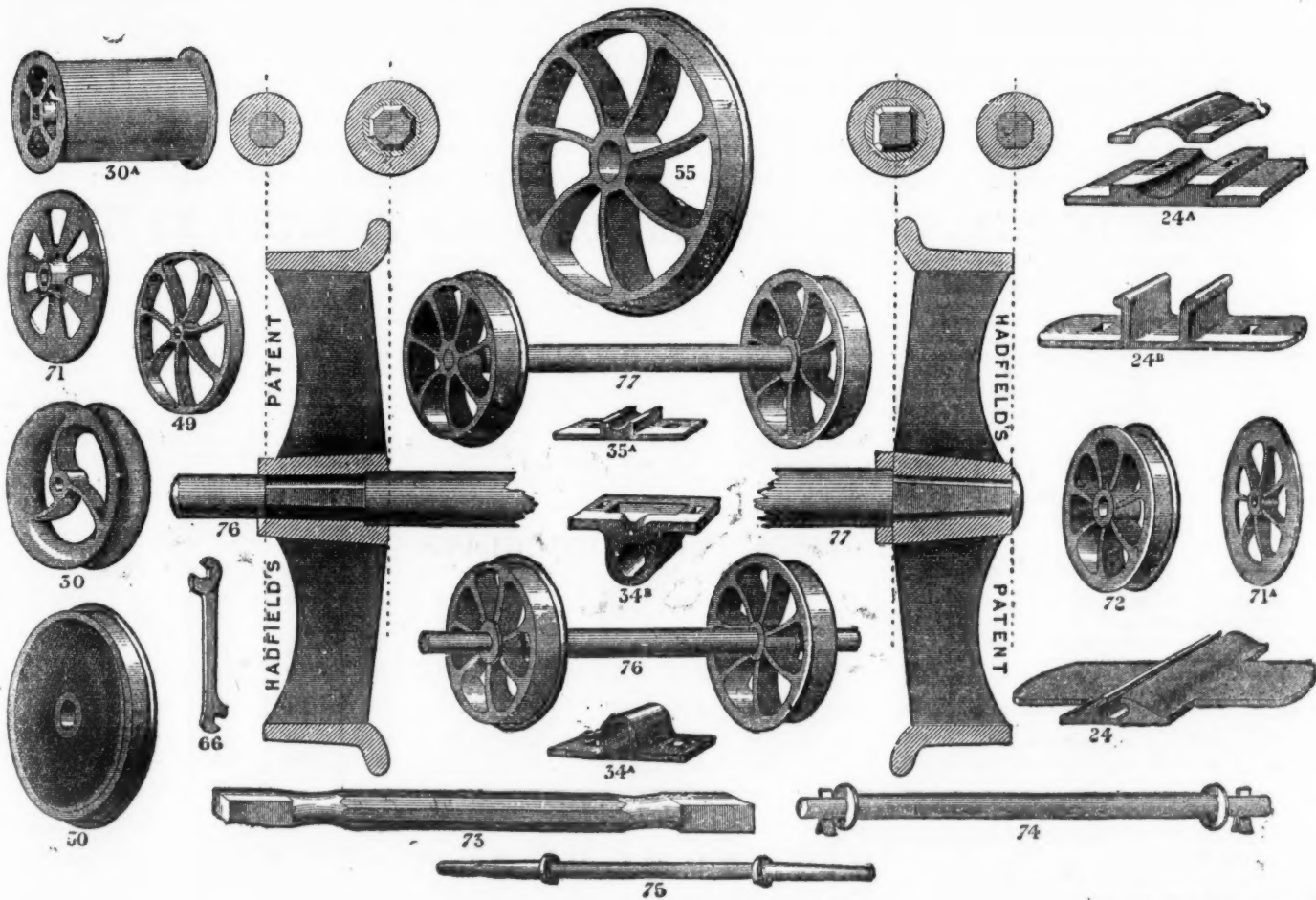
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## HADFIELD'S CAST STEEL WHEELS.

One of our departments is specially adapted for the manufacture of these Wheels (as shown below), for Collieries, Ironstone Mines, Slate Quarries, Ironworks, Lead Mines, &c., &c. We have made, and are now making, many HUNDRED THOUSANDS; and having Patented a New Method of Fitting Wheels upon axles, being cheap, effective, and expeditious, we can execute orders entrusted to us with promptitude, our capacity in this department alone being equal to about 2000 wheels per week.



N.B.—Prices per Set of Wheels and Axles, fitted complete, forwarded on receipt of diameter of wheel on tread, depth of tread, real gauge, and thickness of axles and rolling load.



[This Sheet of Drawings is Copyright.]

### HADFIELD'S PATENT METHOD OF FITTING WHEELS UPON AXLES.

The advantages of the above system are that the Wheels being forced upon a Taper Square-ended Axle, by Machinery, and then riveted (the machine securing truth), it is impossible that they can come loose or get within gauge. They are very cheaply fitted on, and run exceedingly true.

We construct the Arms of wheels upon the curved principle (as shown in the drawings above), consequently the shrinkage or cooling of the Castings is not interfered with, thus securing the greatest advantages of our very strong material.

CRUCIBLE CAST-STEEL WHEELS, when cast by us, are made from one third to one half lighter than Cast-Iron. They cannot be broken while working, even with rough usage and will wear at least twelve times as long as Cast Iron, thus saving animal and steam power, and reducing wear and tear immensely.

We would also draw special attention to our INCLINE PULLEYS and CAGE GUIDES, the adoption of which will prove highly advantageous.

MACHINE MOULDED STEEL GEAR WHEELS OF EVERY DESCRIPTION.





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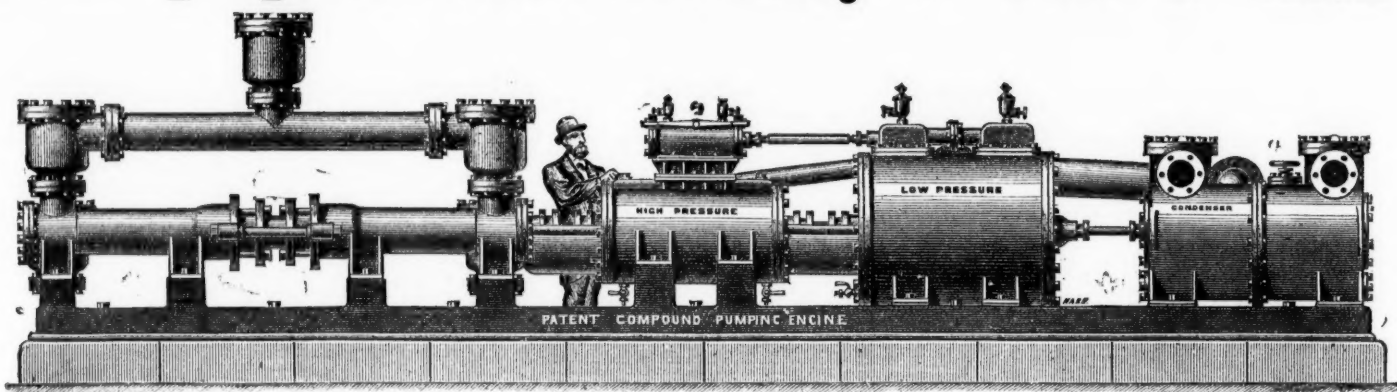


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TANGYE'S COMPOUND PUMPING ENGINE COMBINES SIMPLICITY, CERTAINTY OF ACTION, GREAT ECONOMY  
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This Engine will be found the most simple and economical appliance for Mine Draining, Town Water Supply, and General Purposes of Pumping ever introduced, and as regards Mine Draining, the first cost is very moderate compared with the method of raising water from great depths by a series of 40 or 50 fm. lifts. No costly engine-houses or massive foundations, no repetition of plunger lifts, ponderous connecting rods, or complication of pitwork, are required, while they allow a clear shaft for hauling purposes. In this Engine the economical advantages resulting from the expansion and condensation of steam are very simply and effectively obtained. The steam after leaving the high-pressure cylinder is received into and expanded in the low-pressure cylinder, and is thus used twice over before being exhausted into the condenser or atmosphere.

The following first-class Testimonials will bear evidence as to the efficiency and economy of the Engine:—

## TESTIMONIALS OF TANGYE'S COMPOUND PUMPING ENGINE.

21" Newcastle and Gateshead Water Company, Newcastle-on-Tyne, Oct. 20, 1879.  
36 × 10" × 48" COMPOUND CONDENSING STEAM PUMPING ENGINE.

Messrs. Tangye Brothers.

GENTLEMEN,—In reply to your enquiry as to the efficiency of the two pairs of Compound Condensing Engines recently erected by you for this company at our Gateshead Pumping Station, I have great pleasure in informing you that they have far surpassed my expectations, being capable of pumping 50 per cent. more water than the quantity contracted for; and by a series of experiments I find they work as economically as any other engine of the compound type, and will compare favourably with any other class of pumping engine. By the simplicity of their arrangement and superior workmanship they require very little attendance and repairs, and the pumps are quite noiseless. A short time ago I had them tried upon air by suddenly shutting off the column, and found they did not run away, thus showing the perfect controlling or governing power of the Floyd's Improved Steam-moved Reversing Valve. I will thank you to forward the other two pairs you have in hand for our Benwell Pumping Station.

(Signed)

Yours respectfully,  
JOHN R. FORSTER, Engineer.

The Chesterfield and Boythorpe Colliery Company (Limited),  
Registered Office, Boythorpe, near Chesterfield, Oct. 1, 1879.

21"

36 × 12" × 48" DOUBLE RAM COMPOUND CONDENSING STEAM PUMPING ENGINES.

Messrs. Tangye Brothers.

Supplied in January, 1878.

GENTLEMEN,—Referring to the above, which we have now had working continuously night and day for the last 12 months, we are glad to say that it is giving us every satisfaction. It is fixed about 400 feet below the surface, the steam being taken down to it at pressure of 45 lbs. per square inch. We can work the pump without any difficulty at 28 strokes per minute=224 ft. piston speed. The pumping power is enormous. The vacuum in the condenser being from 11½ to 13 lbs. The pump is easily started, and works well and regularly. The amount of steam taken being much less than we anticipated. We consider the economy in working very satisfactory indeed. The desire for power and economy at the present day will certainly bring this pump into great requisition.

Yours truly,  
(Signed)

M. STRAW, Manager.

## SIZES AND PARTICULARS.

	8	8	8	10	10	10	10	12	12	12	12	14	14	14
Diameter of High-pressure Cylinder.....In.	8	8	8	10	10	10	10	12	12	12	12	14	14	14
Ditto of Low-pressure Cylinder.....In.	14	14	14	18	18	18	18	21	21	21	21	24	24	24
Ditto of Water Cylinder.....In.	4	5	6	5	6	7	8	6	7	8	10	7	8	10
Length of stroke.....In.	24	24	24	24	24	24	24	24	24	24	24	36	36	36
Gallons per hour approximate.....	3900	6100	8800	6100	8800	12,000	15,650	8,800	12,000	15,650	24,450	12,000	15,650	24,450
Height in feet water can be raised with 40 lbs. pressure per square inch in } Non-condensing...	360	330	160	360	250	184	140	360	264	202	130	360	275	175
Ditto ditto ditto—with Holman's Condenser...	480	307	213	480	333	245	187	480	352	269	173	480	367	234
Ditto ditto ditto—with Air-pump Condenser...	600	384	267	600	417	306	335	600	440	337	216	600	459	203

CONTINUED.

	16	16	16	16	18	18	18	18	21	21	21	24	24	24	30	30
Diameter of High-pressure Cylinder.....In.	16	16	16	16	18	18	18	18	21	21	21	24	24	24	30	30
Ditto of Low-pressure Cylinder.....In.	28	28	28	28	32	32	32	32	36	36	36	42	42	42	52	52
Ditto of Water Cylinder.....In.	8	10	12	14	8	10	12	14	10	12	14	10	12	14	12	14
Length of stroke.....In.	36	36	36	36	48	48	48	48	48	48	48	48	48	48	48	48
Gallons per hour approximate.....	15,650	24,450	35,225	47,950	13,650	24,450	35,225	47,950	24,450	35,225	47,950	24,450	35,225	47,950	35,225	47,950
Height in feet water can be raised with 40 lbs. pressure per square inch in } Non-condensing...	360	230	160	118	456	292	202	149	397	276	202	518	360	264	562	
Ditto ditto ditto—with Holman's Condenser...	480	307	213	154	603	389	269	198	528	363	269	691	480	352	750	
Ditto ditto ditto—with Air-pump Condenser...	600	384	267	191	750	486	337	248	660	450	337	864	600	440	937	

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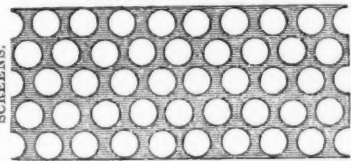
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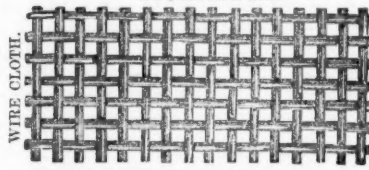


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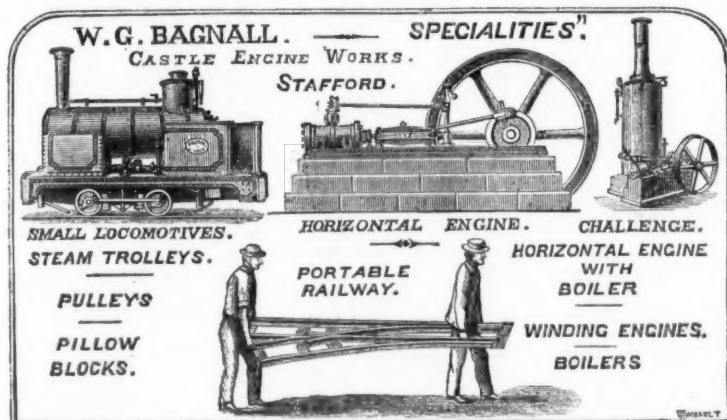
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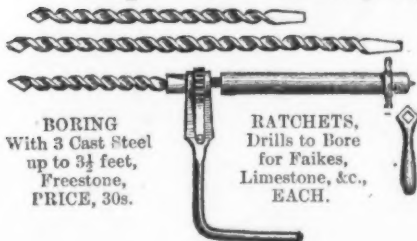
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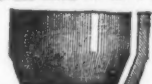
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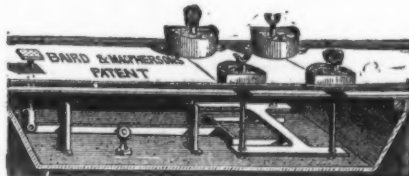


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SPECIAL DESIGNS FOR EXPORT AND DIFFICULT TRANSIT.

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THESE MACHINES are constructed to meet the requirements of  
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The Machines are complete in themselves, and require no masonry  
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IMPROVED CRUSHING MILL, combining the "Marsden Patent Ston-  
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Gold Medal, Silver Medal, and Honourable Mention awarded at the Paris Exhibition, in competition with all the World.  
FOR MY LATEST PATENTED STONE BREAKERS AND ORE CRUSHERS.

HIGHEST AWARDS  
FROM THE  
MINING INSTITUTE  
OF CORNWALL.

# H. R. MARSDEN,

ORIGINAL PATENTEE AND SOLE MAKER OF BLAKE-MARSDEN

PULVERISERS,  
BONE MILLS  
MORTAR MILLS,  
&c., &c.

## Improved Patent Stone Breakers & Ore Crushers.

New Patent Reversible Jaws,  
in Sections with Patent  
Faced Backs.

NEW PATENT ADJUSTABLE  
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OVER 2750 IN USE.

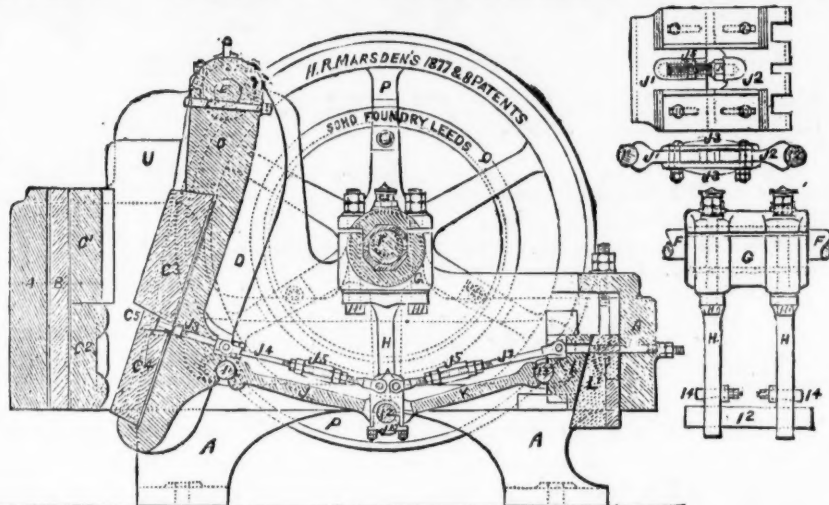
NEW PATENT WROUGHT-IRON CONNECTING  
ROD.

New Patent Draw-back  
Motion.

NEW PATENT STEEL TOGGLE BEARINGS.

60

PRIZE MEDALS.



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many of the mines under our management, and are  
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We are, yours faithfully,  
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H. R. Marsden, Esq.,  
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St. John del Rey Mining Company (Limited).  
A SAVING OF FIFTY-FIVE HANDS BY THE USE OF  
ONE MEDIUM-SIZED MACHINE.

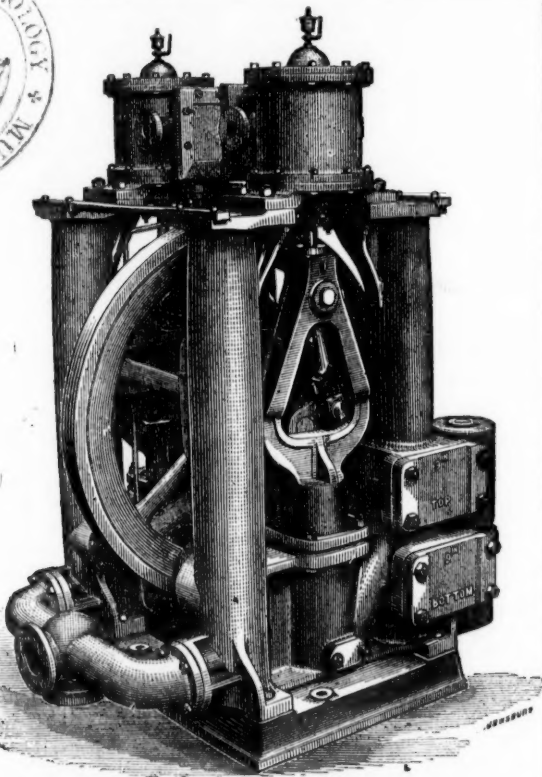
BLAKE'S STONE BREAKER.—Statement made by the  
Managing Director of the St. John del Rey Mining Company,  
Mr. John Hockin, with regard to six months' practical  
working of Blake's Stone Breaker, affording facility for  
judging of the relative economy of machine and hand  
labour in this kind of work, and also of the cost of getting  
the Stone Breaker to work in difficult places. The price  
paid to Mr. Marsden for the machine referred to by Mr.  
Hockin was £180, and adding to this the cost of engine,  
carriage, and fixing, the aggregate cost to the company  
of the Breaker in working order was £500. By this outlay  
the company is enabled to dispense with the labour of 55  
people, the value of which is £800 per annum. The cost  
of working the machine could not be more than the wages  
of about five men (the machine requires but one man to  
feed it, so that the rest would be for engineer, fuel, oil,  
&c.), and allowing for interest on outlay and for renewal  
when necessary, the saving must be enormous.—Mining  
Journal.

GREATLY REDUCED PRICES ON APPLICATION.

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CATALOGUES, TESTIMONIALS, &c.

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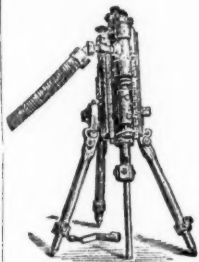
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PARIS EXHIBITION, 187  
YORK EXHIBITION, 1879.

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MANUFACTURERS OF THE PATENT

ROANHEAD ROCK DRILL,

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PARIS EXHIBITION,  
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